AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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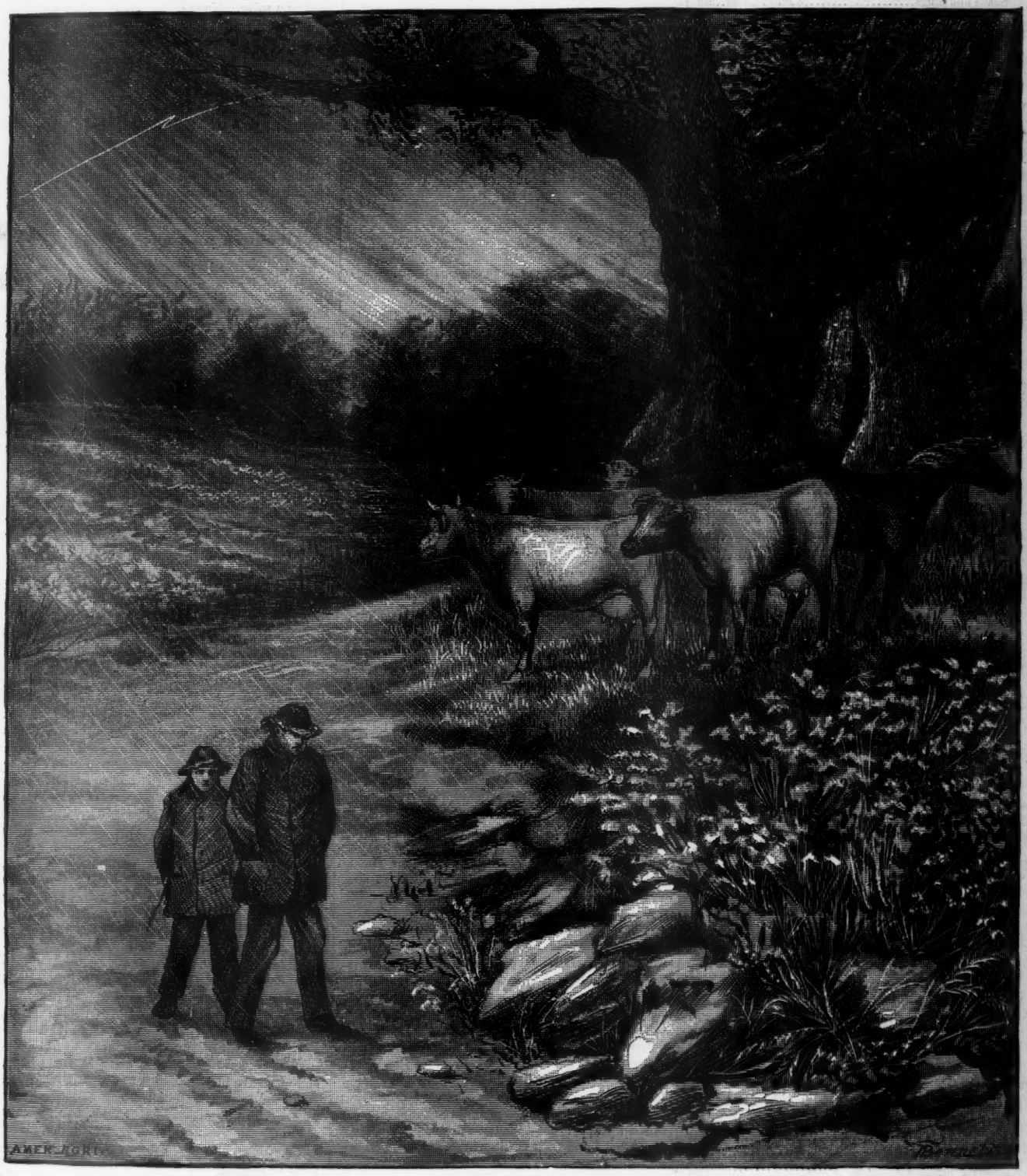

Drawn and Engraved for the American Agriculturist.

The white of the leaves, the amber grain, Shrunk in the wind—and the lightning now
Is tangled in tremulous skeins of rain.—ALDRICH.

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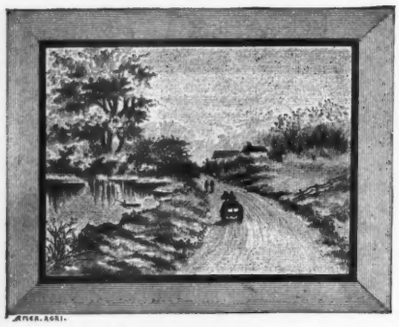
August.

"No more shall violets linger in the dell,
Or purple orchis variegate the plain,
Till Spring again shall call forth every bell,
And dress with hurried hands her wreaths again."

CHARLOTTE SMITH.

FARM AND GARDEN WORK FOR



AUGUST.

August may be a very busy month, yet there is no month in the year when many farmers can better take a play-spell, and make a journey to the mountains, or to the seaside with their families, tarrying on the way to visit friends, or famous stock farms, or dairies or cheese factories, or other objects of interest. Summer crops are "laid by," the turnip crop is in, winter grains are safe in stack or mow, spring grains may be ready to cut, and as soon as this is done, comes the farmer's holiday. How much good it does the whole family, who can be spared from the superintendence of the house, the farm, and the dairy, to take such a vacation. All should have their turn, though they can go but one or two at a time; and no one should be more sure to go than she whom it is so hard to persuade to leave, even for one day, the daily round of home duties—the good house mother. Turnips will make a good crop, sown the first week in August; even Swedes do well on light, rich land, and the small roots, as big round as a pint cup, are more marketable than bigger ones. After the rains soften the sward, we may plow for wheat, and in some sections it is a great advantage to sow early and seed to grass. In some sections the practice of early seeding to grass, without the intervention of a grain crop, is successfully followed. This only abstracts value from the soil which would otherwise be appropriated by the grass. Early plowing is a great advantage to land intended for winter grain, especially if weedy, or if somewhat stiff; repeated working mellows the soil, makes sure of a good catch of grass seed and defends against winter killing. In case the season is dry—and it generally is, over a great part of the country—no more favorable time can be selected for digging drains with a view to improving swamps. If the actual reclaiming cannot now be pushed, the land may easily be dried, so that it can be grubbed and further ditched during the autumn and winter.

All readers turn immediately to p. 348 for matters of special interest.

Live Stock Notes.

The milk supply will probably show, by its falling off, how the dry weather is affecting the pastures. The water supply must be well watched, for the cows should never be forced to drink from polluted, stagnant pools. Slinking and other maladies often come from this cause. Green fodder should supplement short pasturage. Green fodder corn increases the flow of milk at once, but the quality notably deteriorates. It should be fed with some grain. A good armful of fodder corn, and two quarts of corn and oats ground together, will keep up both the quantity and quality. Horses will be grateful for a run in the pasture on hot nights. Harness galls, sores of all kinds, fly bites, etc., we find are best treated with carbolic soap (sheep dip) used as a salve. Keep colts growing by feeding a few oats daily. Ewes intended for early breeding, should be well fed for a week or two before the ram is turned with them. It is important to tar the noses of the whole flock, to protect them against the gad-fly and grub in the head. The pigs should revel in weeds and fallen or otherwise wasted fruit, and if possible should have the run of orchards, where they will devour the gnarly and worm-eaten fruit. Poultry should have the run of stubble fields, both for the scattered grain, and for the numerous insects.

Orchard and Fruit Garden.

Early apples and pears will now be ripening and should be gathered for home use or for market. In the eastern States, in localities near a market, early apples pay better than late varieties, as the grower has not to compete with the Western fruit growers. These are only profitable when they can be sent to a near market, while the late fruit can be transported a long distance without injury. Early apples, of showy kinds, should be carefully selected, and sent to market in neat packages. Half barrels, lined with white paper, are the most attractive package, though, on account of their cheapness, bushel and half bushel crates are used by many. The fruit should be matured—*i. e.*, full-grown when gathered, but should not have had time to mellow. When an apple or pear is mature, it readily parts from the tree; when lifted to a horizontal position the stem of the fruit will break away from the twig to which it is attached, leaving a clean, well defined scar. With fruit, maturity is a distinct stage, and ripeness, or mellowness, another. Early fruit generally, if picked when mature, will be ripe and mellow by the time it reaches the consumer. Fruit picked thus, and ripened off of the tree, is vastly better in flavor, juiciness and texture than if allowed to remain on the tree until "dead ripe."....The great trouble with peach-growers is in getting good pickers. It is all important that the one who gathers peaches should do it intelligently. The fruit should be picked in such condition, that it will be ready for eating when it reaches the consumer. If, when pressed by the thumb and fingers, the fruit yields to the pressure, it may be picked. The fruit should be carefully assorted and at least three grades made; the largest and finest are placed in one basket; sound and perfect fruit, but undersized, is placed in a second; sound, though very small fruit, makes a third grade. Overripe, bruised or otherwise poor fruit should be rejected and given to the pigs. While the peaches in the basket or crate should be the same all through, yet it is allowable to "face" the fruit; this is done by turning the peaches of the top layer so that they will have their blush, or sunny side, uppermost. The farther the peaches have to go to market, the firmer must they be when gathered and packed. The shipper of fruit of any kind should select his consignee or commission house early in the season, and not leave him for another without good cause. A little inquiry will allow one to ascertain who are reliable....Fine specimens of fruit to exhibit at fairs may be obtained by severe thinning, giving one specimen all the nourishment that would have gone to half a dozen or more....Insects must not be neglected. Tack strips of old carpet, or other coarse fabric, around the trunks of apple trees; remove, every week or ten days, and crush the "apple worm," larva of the codling moth, that has taken shelter under them. Pick up all windfalls, or allow

swine to do it....As soon as the raspberries and blackberries are gathered, cut away the old canes. ....Keep the strawberry bed clear of weeds. Make new beds with pot-layered plants.

Kitchen and Market Garden.

This is a month in which there is less to do in the garden than in any other, save those of winter. Still, there is enough to do. Weeds are always to be destroyed, and in summer weather they grow rapidly. Use a long-toothed rake among newly set cabbage and other plants. It is very destructive to young weeds. As fast as a crop is cleared off, occupy the ground with something, else weeds will take possession. If nothing else need be sown, sow rye or fodder corn for the cow. ....If any vegetables are sent to market, wash, trim, and bunch neatly; they will bring a much better price than if sent loose and in poor order.... Plant bush beans for a late crop, and for pickles. The ends of Lima bean vines should be pinched off when they reach the top of the poles....Beets, carrots, parsnips, and other root crops, should be hoed or cultivated until the growth of leaves prevents....As soon as the ears have been taken from sweet corn, cut up the stalks, and cure for the cow to eat in winter....Cucumbers for pickles should be watched every day, and all those of a suitable size be gathered. Cut away all that have grown too large, unless wanted for seed....Celery plants may yet be set out in a well manured bed, or on ground manured for an earlier crop. Mark out rows three feet apart, and set the plants six inches apart in the rows....The fruits of egg plants are so heavy that they will rest upon the ground and decay; a wisp of straw, or a shingle or other board, placed under the fruit will prevent this.... Melons often set more fruit than will ripen. Cut off the surplus, and use for stuffed pickles or for mangoes. Melons ripen more evenly if turned every few days. Onions, as soon as the tops fall over, should be harvested. Pull and allow them to cure a few days in the sun, and store in a cool, dry place....Early potatoes, when dug, should not be exposed to the sun; it may be well to try exposing those intended for seed, for a few days, until they become thoroughly greened, and store carefully until planting time, being careful to not break the sprouts in handling them....The Chinese Rose-colored radish, if sown now, will make a crop for winter use....Sow spinach for use the coming fall. ....Keep tomatoes trained to their supports. Cut away all fruit set too late to ripen....Sow turnips of the Yellow Stone, Aberdeen, and Cow Horn varieties. Thin the Ruta-baga kinds to at least ten inches apart....If seeds of any kind are to be saved, select the best and earliest, and not use the leavings, after the best have been picked.

Flower Garden and Lawn.

In hot, dry weather, do not mow the lawn too often; let the cutting be governed by the growth. ....Plants in ornamental beds need cutting back to preserve an even surface, and the different kinds, if disposed to run into one another, should be so trimmed as to preserve distinct outlines.... Unless it is desired to save seeds, cut away flower-clusters as soon as the bloom fades....Supply dahlias with stakes, the chief branches as well as the main stems; tuberoses, gladioluses and lilies may need supports....Keep chrysanthemums in a growing state by the use of liquid manure, and pinch them into shape. If a black aphis troubles them, use tobacco water. Make cuttings of any plants desired for winter blooming.

Greenhouse and Window Plants.

Make all needed repairs to the greenhouse and its heating apparatus....Lay in a supply of potting soil, sand, moss, pots, and whatever else may be needed during the winter. A light, dry cellar makes an admirable "potting shed" for the window garden, and the needed articles can be stored here....Do not neglect the plants set out of doors for the summer, give needed watering, and do not allow insects to injure them. Though such plants need shade, they should not receive the drip of trees. Camellias and other plants with thick leaves need more shade than others....If any plants are infested by plant-lice, sprinkle with tobacco water, if they cannot be fumigated with tobacco smoke.

Bees in August.

The flow of Bass-wood honey being over, the principal supply is now from buckwheat. Honey from this source is dark-colored, and has a peculiar flavor, which causes it to be rejected by some, while others esteem it on this account. Golden-rods, or *Solidagos*, are very abundant at this season, and are conspicuous everywhere for their clusters of bright-yellow flowers. Some species grow in the most sterile soils, while others abound in the marshes. The golden-rods yield a very fine colored honey, and one of excellent flavor.

In Operating upon Hives.—If the hive is opened to ascertain the condition of the queen, or for any other purpose, it is liable to be visited by robber-bees in large numbers. To guard against this, as well as to add to the comfort of the operator, it is well to provide a tent made of mosquito netting, stretched by means of a few sticks and strings. Under the protection of such a tent, all needed changes can be made, since the operator is proof from the attacks of robber-bees. A tent of this kind was illustrated in August, 1884. Hives should be examined to ascertain the presence of a fertile queen, and, if necessary, supply one. The movable comb hive allows of artificial swarming.

In Packing Honey for Market, the greatest neatness should be observed. The boxes should be thoroughly cleaned of any propolis that may adhere to them. Section boxes should have the glasses added to them. In sending honey to market, it should be properly graded; clover honey, and that from bass-wood and buckwheat, being distinguished by proper labels. Extracted honey is sent to market in such glass jars as are used for preserving fruit. Twelve quart jars in a case.

First Lesson in Firming the Soil.

Peter Henderson, the author of "Gardening for Profit," in insisting upon the great importance of firming the soil over seeds and plants, writes us: It was rather an amusing incident that first brought to the attention of a truck farmer, of Charleston, S. C., the importance of firming the soil. It seems that a gentleman of color, having the constitutional weakness for chickens peculiar to some of his race, got into a hen-roost and helped himself bountifully. In evading the high-road, he struck a bee-line through a newly sown turnip field, where he left tracks that led to his detection. But these tracks did more. They showed to Squire Buncombe, whose chickens had suffered, that wherever the foot of the colored citizen had fallen, there he had a "stand" of turnips, and nowhere else (for they had been loosely sown and the weather was dry). The lesson was heeded and has been worth tens of thousands of dollars to the farmers of South Carolina, who, it seems, were never before sufficiently alive to the importance of firming the soil until the unfortunate negro showed them the way.

Thinning Root Crops.

It may seem sometimes a hard thing to do to pull up promising plants and throw them away, and a farmer is thus tempted to permit the roots to stand too close in the rows. But it is indispensable to success that the plants have plenty of room. Large roots weighing ten to sixteen pounds cannot be grown at less than sixteen inches apart, and eighteen inches is better still. At this distance, with full rows, there will be 9,800 roots to the acre, and if the roots average ten pounds, which is not at all difficult to reach, there will be forty-nine tons to the acre. At half the distance the roots may only average three pounds, making only little more than twenty-nine tons to the acre. The same applies to corn, for all plants need abundant feeding space for the roots, and must not be crowded much.

Seth Green Tells Farmers How to Raise Their Own Trout.

There are many farmers who own trout streams, and would like to have them restocked, and some others very feebly attempt to do it by putting in a few thousand young fish. This would restock a small stream if it were done every year for some years. But it is folly to suppose that a large stream, which has been fished for years, and thousands taken from it every year, can be restocked quickly by putting in a few hundred, or even a few thousand young fry. It is much easier to stock a stream than to raise fish in ponds, because the young fish will take care of themselves much better than anyone can take care of them, and if they are protected from danger until they are about forty-five days old—which is about the time the fish culturist takes charge of them—until they are ready to feed, they are then tolerably able to look out for themselves. In stocking a stream with trout, the young fish should be taken to its head-waters, or put into the springs and little rivulets which empty into it. As they grow larger, they will gradually settle down stream, and run up again to the head-waters in the fall and winter to spawn.

When putting fish into a stream, do not put them suddenly into water much warmer than that of the vessel in which they have been transported. They will not be so likely to be injured by putting them in water a few degrees colder; but try to avoid all sudden changes, and gradually raise or lower the temperature of the water in which you bring them, until it is even with that of the stream in which they are to be placed. Perhaps, in no branch of fish culture, are the results more immediate, or more apparent, than in restocking streams. Very many inland streams that were once inhabited by trout, are now wholly depleted, not only of that fish, but of all others. They are beautiful, sparkling little streams, but so far as a food-producing element goes, they are valueless, and in a large majority of cases, they make a wonderful return for the restocking.

In the year 1875, the State of New York directed its commissioners to purchase a trout breeding establishment, and to raise and distribute brook trout. Since then, from one to two millions have been hatched and distributed each year, and the results have been most gratifying. Those that were taken first, after the restocking, were small, of course; those that were left, had the more food, and by the next year, yielded nearly as much weight, although fewer would be taken; and the following year the fish were still larger, furnishing a splendid return for the expense of restocking.

This addition to the yield of any stream, is so apparent as to convince the most skeptical. It is indisputable; and those who have once visited a trout stream the year after it has been stocked, and have seen the young fish—then from three to five inches in length—darting out from under the weeds and roots, will need no further proof as to the practicability of trout culture. In such cases one may almost say that the number taken from a stream will depend simply upon the number put in, provided the stream is well stocked with food for them, while the cost of hatching and transporting is small, indeed, when compared with the yield of pleasure.

No brook, that has once contained trout, need be without them if the waters remain pure and cold. I believe there are no waters more satisfactory to stock than brook trout streams, because they are always before you. In stocking waters with shad or salmon, they migrate to the ocean, and only return once a year for the purpose of spawning; with salmon-trout and white-fish, they stay most of the time in the deep waters of our lakes; but brook-trout remain where they are placed, grow, and are caught among the residents, and contribute directly to the support and amusement of the people. Streams that have been wholly worthless in producing food, can be once more replenished, and be made a very valuable addition to the farm.

Draining Land by the Plow.

The present is a good time for farmers who have low lands, on which pools of water stand, to arrange for keeping the water off in the best and cheapest manner. Standing water is even better for farmers than a spirit level, as after a heavy rain you can get

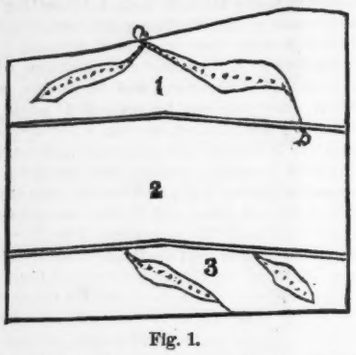


Fig. 1.

the trend of the land in every direction, with the best outlets for the different pools; and if the farmer will provide himself with a supply of light stakes, and ride through the centers of the pools and down the outlets, as the water flows out from them, placing the stakes as he goes, he will be prepared to drain his land when the water is off. This may be done mainly with the plow, and without making uncrossable ditches.

When the land is dry enough, take a one-horse plow and run a furrow, following the stakes to the natural outlet, as shown in figure 1, starting at *a* and running to *b*, and so with the other lands, as indicated by the solid lines in figure 2; then plow all these lands, turning the soil always to the center of the plot, and finishing in the center of the ditches or drains. This can be accurately done, as shown in figure 3, by laying the plot off as if for sowing grain, commencing at any corner, and stepping twenty or any number of steps towards the

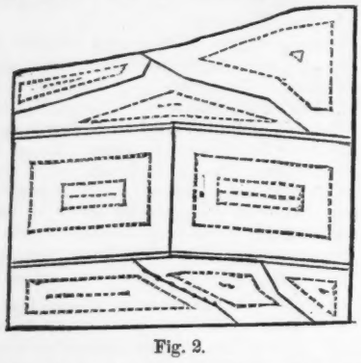


Fig. 2.

center of the plot, as at *c*; and putting a man with a small plow at this point, let him wait until you get to *d*, which is the same number of steps from the next corner and towards the center; then let him run a straight line to you. Repeat this until you have a furrow all around the inside of the plot, and continue to make these furrows, one inside of the other, as shown by the dotted lines in the different figures, until you come to the center of each plot. Now commence with your turning plow and plow out the center plot, and as it is so small it does not make much difference which way the soil is turned, but afterwards turn all the soil to the center and see to it that no marking furrow is crossed until all inside of that lot is plowed, as it is much easier to keep a small land in shape than a large one, and any good plowman will soon learn to keep his furrows parallel to the marking furrows.

Trying to plow to the center, without laying the land off, usually ends by having large slices in some places unfinished, while in others you are running in the drains. In this way finish the whole field, and you will find the land shaped so as to gradually slope from the centers to the drains, and every successive plowing will make it better if this system is persevered in. If these drains are not found deep enough in places, plow a strip on each side of them, turning from them, and finishing in the bottom of these drains; repeat this until the drains are deep enough. We have frequently plowed the whole of a plot several times in one season when it was in bad shape. Such drains offer no obstruction to wagon, reaper or plow, and corn rows may run straight across them and can be worked as if they were not there, if you will take a one-horse turning plow and throw the soil out of the drain after each plowing.

An Artificial Spring.

Over the larger area of the country are frequently found spots of ground filled with water throughout the year. These waste patches abound wherever the land is not of that rocky formation which gives rise to springs. They are produced in the same way that springs are—by water entering the ground and flowing along some subterranean, impervious stratum until it approaches the surface. In the case of springs, the water finds a ready outlet. But when it must find its way through a stratum of earth, it forms one of the spots spoken of, and which are often called "seeps," because the water must "seep," or ooze, through this earth. If all the seeps in this country were gathered together

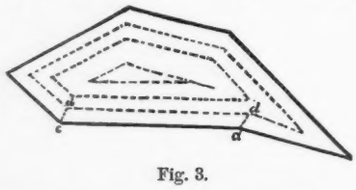


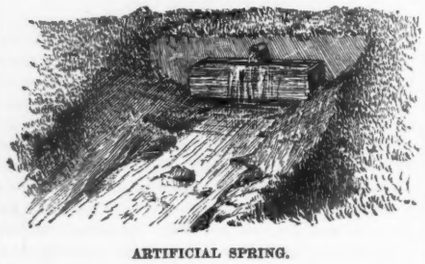
Fig. 3.

they would make tens and hundreds of thousands of acres. They most abound where the land is most fertile, as on the rich slopes of the prairie States.

It has been found that when these spots are underdrained, they become the most productive of lands. The "sourness" of the land almost immediately disappears. The water is so well removed by the drains that the ground can soon be stirred and becomes the most friable on the farm. Every reader, who is acquainted with these seeps, knows that the land lying just above them is unusually productive. Seepy land reclaimed by underdraining becomes fully as productive as the highly fertile land lying above it; and this productiveness is scarcely perceptibly reduced by heavy cropping for years. What before only produced frogs and miasma, now yields the heaviest crops of grain or grass.

The system of underdraining adopted for these spots is very simple. A main course is laid through the lowest part of the land, and laterals from the limit of the wet land to the main drain. In many cases the net profits from the first two years' crops will pay for the underdraining.

The flow of water lasts throughout the year. In the dryest season, the flow from an acre of such land will be several hogsheads per day. This water is clear and cool, no longer stagnant and offensive. By such an arrangement as is shown in the illustration, a never failing spring, yielding pure water for



ARTIFICIAL SPRING.

stock every day in the year, may be formed. At the outlet of the drain, the ground is excavated enough to admit a trough under the drain. The excavation should be paved with flat rock, that mud may not be formed. The water, overflowing from the trough, may take its course over these stones, or it may be conducted away by a pipe, or in a paved ditch at the side of the excavation.

Farm Bridges.

The best season for the construction of bridges across streams is when the ground is solid and the

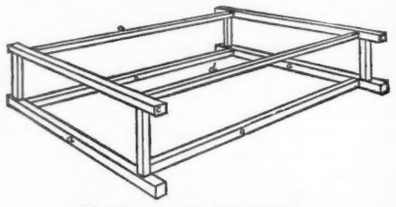


Fig. 1.—FRAME FOR BRIDGE.

water low. Where the streams are fed by springs, and flow regularly throughout the year, the bridges may be of solid construction, and it is in these localities that stone—the best material for farm bridges—is most plentiful. But where the streams owe their supply altogether to surface water, their flow is so spasmodic that substantial bridges can hardly be recommended. Stone is scarce, and after hard rains the creek is so enlarged and its current so swift that it will carry away any bridge the farmer can build.

Of the simpler, framed bridges, the one shown in figure 1 is as substantial and stable as any. The sills, *a*, *a*, are sunk in a ditch dug against the bank and at least to the level of the bed of the creek. The cross-sills, *b*, *b*, are not mortised into them but simply laid between them. The pressure is all from the outside, hence, it will force *a*, *a*, tighter and tighter against the ends, *b*, *b*, which must be sunk a little into the bed of the creek at its lowest point. The posts are mortised into the sills, *a*, *a*, and plates, *c*, *c*, and *d*, *d*, upon which the planks are laid. Props may be put against the lower sides of the posts to hold the bridge against the stream.

A very good bridge for crossing an ordinary stream is shown in figure 2. Two logs are laid across the creek, their ends resting on the banks,

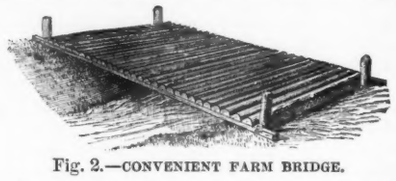


Fig. 2.—CONVENIENT FARM BRIDGE.

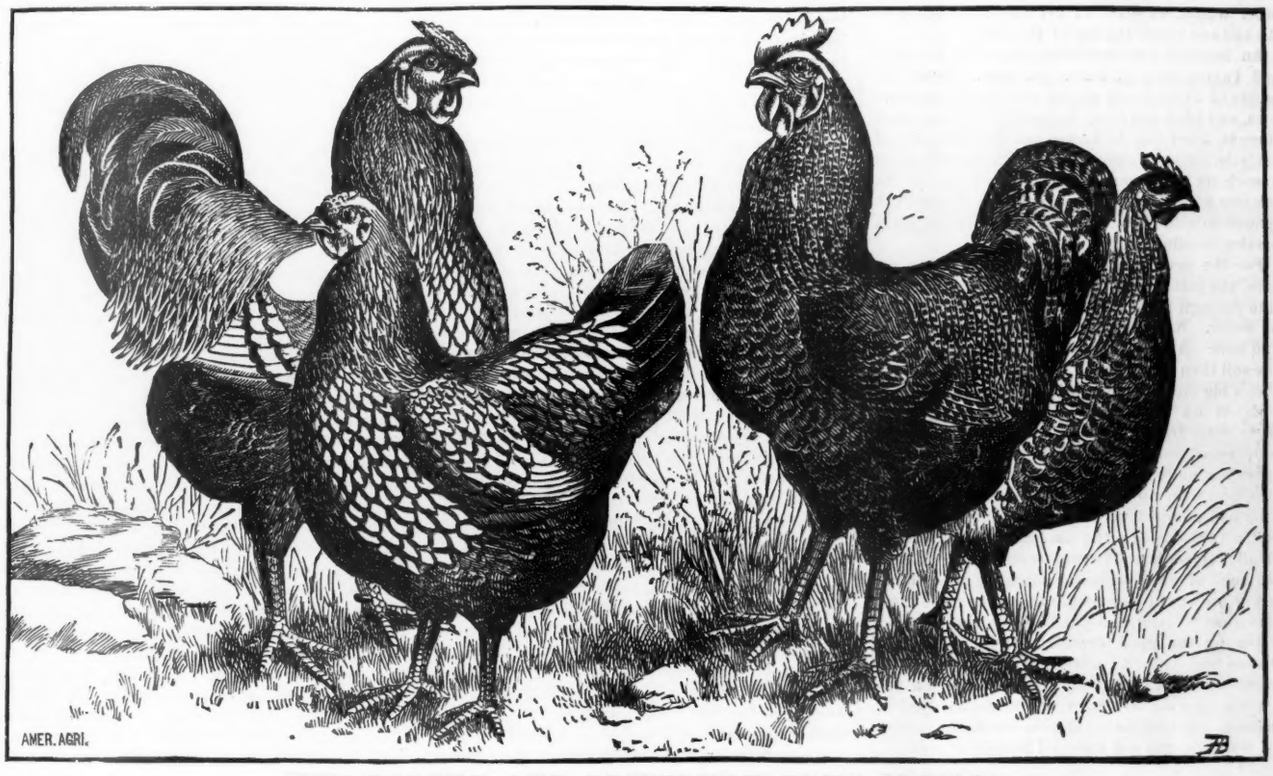
and to them puncheons are pinned or spiked to form the bridge. Stout posts, well propped and reaching above the highest water mark, are placed against the lower side of the logs. If the creek rises, the bridge, being free, will be raised up on the surface of the water, while the posts will prevent its being carried away. Should it not raise with the water, it opposes so little surface to the current, that the posts will hold it fast.

TO KEEP THE WATER JUG COOL.—An excellent device for keeping the contents of the water jug cool, is to make a sack, of some strong, close stuff, large enough to make a space of two inches under and around the jug, which space is packed with sawdust. Put a string around the jug at the bottom. The length of this string, plus six inches, will be the proper measure of the sack at that point. In the same way the proper measure of the sack along the curve of the jug can be obtained. The bottom of the sack is cut by placing the jug on the cloth, and cutting around, two and one-half inches from the jug. The sides of the sack are best made in four pieces. Sew these pieces to the bottom and together for two or three inches. Then pack in the sawdust as far as the pieces are sewed together, and make another sewing, etc. The sack must be sewed close around the handle and the lips of the jug. Water in this jug will be cool after an exposure of six hours to the hot sun.

American Breeds of Fowls.

We have here two breeds of fowls originated by a cross, or crosses, and so long bred as to have their characteristics confirmed to a considerable degree. They are not yet thoroughly established, and in careless hands will rapidly revert to their original elements, or to incongruous nondescripts. Careful breeding every year will confirm their good points. Many of the Plymouth Rocks, which are the older breed, and are shown on the right of the group, are exquisitely colored, particularly the hens. They are not brilliant, but the feathers having each a clear, blue ground, and being broadly edged with black, as in the brightest colored of the old Dominique fowls. The cocks are also often dark and rich in their colors, but it is common experience, not without exceptions perhaps, that when such are mated with dark hens, the chicks are thrown too dark and with indistinct markings; hence, light cocks are mated with dark hens to produce the best results. The trouble encountered by the early breeders of Plymouth Rocks, that of reversion to its original elements or progenitors, is fast passing away. Among the chickens of apparently well-mated, pure-bred flocks, jet black ones and others closely approaching black, would appear, often in large numbers, showing the strength of the Black Java blood said to have been used in the composition of the breed. Plymouth Rock fowls are large as to size; well-formed, having an abundance of breast-meat; not flyers, having short wings and heavy bodies, and yellow-fleshed; are good layers, sitters and mothers; active foragers, hardy, bear confinement tolerably well, and are an excellent table-fowl, whether as broilers, roasting chickens, or capons. They promise, in fact, to be for this country what the Dorkings are in England—the best all purpose fowl. They have, however, a powerful rival in a breed which we will next consider.

The Wyandottes, which are upon the left of the picture, were recognized by fanciers as a breed too early. Their probation was not long enough. A few individuals showed great uniformity of characteristics and beauty of plumage, but these did not breed true, and the great beauty of the Wyandottes was in the pictures made to represent them rather than in the fowls themselves. Different strains varied greatly, and probably always will, but perhaps not enough to divide them up into various recognized breeds, like the Leghorns. They are characterized by having each feather, which is supposed to be white as to ground color and quill, deeply edged with black. It is the depth of this black lacing which causes the appearance of the fowls to vary so greatly. Besides, it often lacks uniformity in the same bird, giving it an irregularly speckled look, while the beauty of the plumage consists in a perfectly uniform marking, each feather showing its white quill and center with its black edge. Still they are improving and have been so well advertised, that they may be said to be "the rage" just now among poultry breeders. They are very much like the Plymouth Rocks in useful characteristics. They are of about the same size, good layers, sitters, table-fowls, etc. They are full rose-combed, clean yellow-legged, easily controlled, active, hardy, useful fowls in every respect; and, no doubt, in good hands, they will breed with care, and breed uniformly and with handsome laced plumage after a few years.



WYANDOTTE AND PLYMOUTH ROCK FOWLS.

Drawn and Engraved for the American Agriculturist.

Late Sown Turnips.

JOSEPH HARRIS.

Turnips may be divided into three classes. First: Ruta-bagas or winter turnips. Second: Intermediate turnips, and Third: Rapid growing turnips, that mature very early and can consequently be sown very late.

The Ruta-bagas, or Swede turnips, contain far more nutriment than the others. They require a longer season for growth, and will keep well all through the winter and spring. The intermediate class, of which the Yellow Aberdeen is an example, is sown in this climate not later than the middle of July. It yields well, is moderately nutritious, and is in good condition for feeding from January until March.

The late class, comprising such varieties as the Purple-top Strap-leaf, Early Flat Dutch and Jersey Navet, contain a large percentage of water, but are by no means destitute of nutriment. In fact, the actual dry matter which they contain is probably quite as nutritious as that of the other classes of turnips. In the United States, there are far more turnips of this late class sown than of all others combined. They can be sown in this section as late as the first or second week in August, and later as we go South. A favorite place for them is low, mucky land, that is too wet early in the season for corn or potatoes. The common way is to sow the seed broadcast with the thumb and two fingers, taking pains to scatter the seed evenly, at the rate of one pound per acre. There are from 250,000 to 300,000 seeds, of Strap-leaf and other early varieties of turnips, per pound. And one pound of good seed, would give a plant five inches apart each way. When you sow broadcast, and do not expect to thin out the plants, it is important to know what percentage of your seed will grow. It is an easy matter to test it, by sowing one hundred seeds and counting the number of plants you get for it. If only half the seed grow, sow two pounds per acre, but change your seedsman next year.

It will pay wonderfully well to go over these broadcast-sown turnips with a sharp hoe, and thin out the plants and kill the weeds. But a far better plan is, to sow the seed with a hand garden drill, in rows about twenty-one inches apart, and cultivate between the rows, and thin out the plants from nine to ten inches apart in the rows.

Our own method is to sow superphosphate with a grain and fertilizer drill in rows twenty-one or twenty-eight inches apart, and then follow with a garden drill and deposit the seed directly over the superphosphate. If the superphosphate is sown broadcast you should double the quantity, say 400 or 500 pounds per acre.

When sowing turnips as late as August, it is important to get the land in the finest condition. Except an alluvial, sandy or mucky land, this is not always an easy matter in dry weather. It is a waste of time to sow turnip seed among dry clods. Harrow or gang-plow, and roll and re-roll until the soil is fine, and sow the seed on the recently stirred soil. Work between the rows with a cultivator.

Walks and Talks on the Farm.

New Series.—No. 23.

Many years ago, I used the term "sap of the soil," and apologized for so doing. But, even now, I do not know of any better term.

On land naturally or artificially drained, when more rain falls on it than it will hold, the water passes off into the drains or porous subsoil. But not the whole of it. A considerable portion of the water is retained in the soil and cannot be drained away. The water that is left is what I call the "sap of the soil." The water which will drain off we want to get rid of as soon as we can. The water which will not drain away, no matter how porous the subsoil or how thoroughly the land is underdrained, is the true sap of the soil—and this it is the object of good farming to conserve. In other words, we want to get rid of the water of the soil and retain the sap of the soil.

An inch of rain furnishes about one hundred and twelve tons of water per acre. Every six inches of average soil weighs about one thousand tons, and after you have drained off all the water, there is, according to Lawes and Gilbert's actual analysis, about two hundred and fifty tons of water in each six inches, or say five hundred tons in the soil one foot deep. Of course, there is great difference in soils. But the above figures are worth bearing in mind.

For the production of one ton of dry hay per acre, the plants pump up from the soil and evaporate through the leaves about three hundred tons of water. And the same is true of wheat, barley and oats. A large crop takes more water out of the soil than a poor crop. Lawes and Gilbert found that a big crop of hay, during a dry summer, had pumped up three hundred and twenty-five tons more water from the soil than the poor crop on the unmanured plot. But, notwithstanding this fact, there was more water in the first nine inches of the rich land than on the unmanured land. The big crop had pumped up its water from below. The soil, a yard deep on the unmanured land, with its small crop, contained twenty-two and three-quarters per cent. of water, while the adjoining land with its heavy growth of hay contained at the same depth less than sixteen and one-half per cent of water.

During the great drouth of 1870 in England, Lawes and Gilbert determined the amount of water—or what I call "sap" in the soil—of a field growing a crop of barley, and in fallow land adjoining. The following figures show the pounds of water in each one hundred pounds of soil.

	Fallow Land.	*Barley Land.*
1st 9 inches	20.36	11.91
2d " "	29.53	19.32
3d " "	34.84	22.53
4th " "	34.33	25.09
5th " "	31.31	26.98
6th " "	33.55	26.39
Mean	30.65	22.09

The fallow land contains 2,875 gross tons of water per acre, and the barley land 1,951 tons per acre. In other words, the barley pumped up out of the soil over two million pounds of water or sap!

Drouth affects grass and spring wheat, barley and oats, but seldom does any serious damage to winter wheat. The roots of the winter wheat have got possession of the soil and subsoil before the drouth has any effect. It is not so with spring wheat, barley and oats. The surface of the soil gets so dry that the young, shallow roots cannot get "sap" enough for vigorous growth. There is an abundance of sap below, but the roots of the young plants do not reach it. A severe drouth in the fall affects winter wheat in the same way. The plants do not find sap enough to give them a good start. In fact, it is no uncommon thing for thousands of bushels of seed wheat to lie for weeks unsprouted among the dry clods. When it rains in the summer, I try to think how much good it will do. When it does not rain and the heavens are brass and the earth iron, and the dry winds and fierce heat wilt or wither every green leaf, I try to think of the 4,370,240 pounds of water which Lawes and Gilbert found in their barley land during their great drouth; and of the 6,448,960 pounds they found the same day in the fallow land.

"Do you believe it?" asked the Deacon.—"I have no more doubt of the substantial accuracy of the figures than I have of gravitation or of the earth's revolution. To-morrow morning these wilted plants will be full of sap and will be smiling in the early sunshine."—"That is caused by the dew," said the Deacon.

During a severe drouth, plants no doubt, get moisture from the moist air and dew, but dew or no dew, you find plants on well cultivated land full of sap in the morning. They get it from the land. The roots pump it up all night from the soil and subsoil, and they pump up quite as much or more during the day. The leaves wilt because the water evaporates faster than the roots can pump it up. Let the sun be clouded for an hour or two, whether we have rain or not, and the plants look refreshed and full of sap. This is often the case after a rain that we know cannot have furnished water enough to reach the roots. We feel grateful for the shade and shower; but we should not forget the sap of the soil. Without that, the shade and shower would be powerless to help us.

Salt often seems to favor the growth of mangold wurzel, and plaster of clover. It is known that these salts check the evaporation of water through the leaves of the plants. And the real or apparent increased vigor of the clover crop from an application of plaster, or of the mangolds from an application of salt may be due to this fact.

In this country, especially, the conservation of the sap of the soil should be a prominent object in all our agricultural and horticultural operations. In the spring, when the soil is more than saturated, we should aim to get rid of the excess of water. We do this by drainage, and by turning up and exposing the damp soil to our drying winds and sun. But when this excess of water is taken out of the soil and nothing but the true sap of the soil remains, we should be careful to save it for the exclusive use of such plants as we wish to grow.

Peter Henderson says, "Firm the soil by treading it down around the seed with the feet." J. J. Thomas says: "Mulch the ground with loose, fine earth. In other words, keep the surface soil for an inch or two deep constantly stirred with a cultivator or harrow, or rake or hoe." The fact is, we have to exercise our own judgment. I have great faith in a roller. Not so much for the purpose of firming the soil as for breaking the lumps. Sometimes a harrow will firm the soil more than a roller. When I was a boy, we used to fasten the harrows behind the roller, put on four horses and roll and harrow at once. Go around and around the field, and do not be afraid to go over the rough, cloddy parts two or three times.

This spring, our land turned up unusually hard and cloddy. Part of a field was rolled immediately after the plow, and the other part left without rolling. We had a great rain lasting three days—more than enough to saturate the land. Where the land was rolled and the clods broken, the soil was all thoroughly moistened and in two or three days after the rain, was in excellent condition; but where it was not rolled, many of the clods inside were as hard and dry as ever.

There is scarcely a week in summer when some of my men do not say: "We need rain." And I always reply: "Let us get ready for it." We were plowing a piece of land during the dry weather in June. It was covered with a luxuriant crop of thistles, which laughed at the drouth. We were plowing with three horses. My man said: "The land is very hard, sir. Hadn't we better wait until it rains?"—"Raise your wheel an inch," I said, "and see if you cannot get down to the moist earth."—"It's about all the horses can do now," he said, "and I have to put on a new point every day."—"That is why I want to plow deeper," said I. "If you can get under the hard crust down to the moist earth, it will plow easier. And, at any rate, it is no use waiting for rain. Rain will not help us as long as the surface is so hard. Break up the land and roll it, and then rain, when it comes, will soak into the loose soil between the clods, which will soon become soft by the gradual absorption of water from the loose, moist earth." He put the plow an inch deeper and turned up more moist, loose earth, with apparently no harder work for the team. And I hope that this deep plowing will finish the thistles.

The Deacon seemed to be thinking. Last year his corn was full of thistles. He sowed the land to barley this spring, and, of course, has a grand crop of thistles, which he tried to cut out with a spud. These thistles in the barley are the only thing that saved me from some quiet hit in regard to having patches of thistles on my farm. As it was, he seemed disposed to dodge the thistle question.

"Speaking of the sap of the soil," he said, "how is it that some plants get more lime, and some, more potash, and some, more phosphoric acid, and some, more nitrogen, from this same sap of the soil, than other plants? The roots suck up the sap and evaporate the water through the leaves. Where the corn failed, we planted beans. You say beans contain much more nitrogen than corn, and both plants get it from the sap of the soil; and yet, we have a hill of beans here, and a hill of corn there, and both get their food from the same dish. Do plants have the power of selection?"

"Is not that," I said, turning to the Doctor, "a good speech for an old farmer who laughs at chemistry?" The fact is, the use of chemical manures has done more to popularize agricultural chemistry, than all other means combined. Twenty years ago, the Deacon would have shrugged his shoulders, or laughed, at the mere mention of phosphoric acid and nitrogen. The world moves, and I am heartily glad of it. "I do not think plants have the power of selection."

"Most certainly they have," said the Doctor. "Wait a moment," said I; "I do not think plants have the power of selection, but they have the power of rejection. Our bean sifter has four large sieves, and if we put in a hundred bushels of beans, containing Kidneys, Marrows, Mediums and Pea beans, the sifter will separate them at one operation, and deliver them in the bags ready for market."

The sieves are about two inches apart. There is a movable slide below, which you shut down when changing the bags. This slide stops the beans. If, as has occasionally happened, this slide is left unopened, the beans choke up the small space below, and then no beans will fall through the sieve. It is just so with plants. They do not select the food they eat; they reject what they do not want. Now, in the case mentioned by the Deacon, the corn requires much less nitrogen than the beans. The sap of the soil furnishes the corn just as much as it does the beans. But the corn plant does not remove the nitrogen from below the sieve as fast as the bean plant does. The slide is partly down all the time, and the nitrogen cannot get through faster than it is removed. And so, it seems to me, that we should not say that beans select out more nitrogen than the corn, but rather that the corn rejects more nitrogen than the beans.

This question has a very important practical bearing. If my idea is correct, the plants which contain comparatively little nitrogen, for instance, would require a "sap of the soil," rich, rather than poor, in nitrogen. And a plant containing comparatively little phosphoric acid, would require a sap, rich, rather than poor, in phosphoric acid. Turnips contain comparatively little phosphates, and yet soluble phosphates are found of special value as a manure for turnips. Wheat and barley contain comparatively little nitrogen; while clover, peas and beans, contain a high proportion of nitrogen; and yet it is a well-known fact that to produce a good crop of wheat or barley, the sap of the soil must be richer in nitrogen than for clover, peas and beans.

To recur once more to my rather rough illustration. The wheat sieve will reject a good deal of nitrogen; the clover sieve will let all the nitrogen through—and we shall find it in the clover plant. Therefore, as nitrogen is the most costly ingredient of plant food and of manures, the wheat-growing farmer, especially, should grow all the clover he can, and feed it out on the farm, or plow it under for manure, but never sell a ton of it. Sell straw, if you must, but never clover hay.

Breaking Horses of Vicious Habits.

OSCAR R. GLEASON.

To Prevent Horses Jumping Fences.—Perhaps no single habit of an animal gives rise to greater annoyance, or is the cause of more damage on the farm than this trick of jumping fences, in consequence of which the horse has to be kept in the stable and loses the benefits of pasturing. When we consider the ease with which this vice can be prevented, and the advantage to both horse and owner, it seems strange that the following simple device is not more generally utilized.

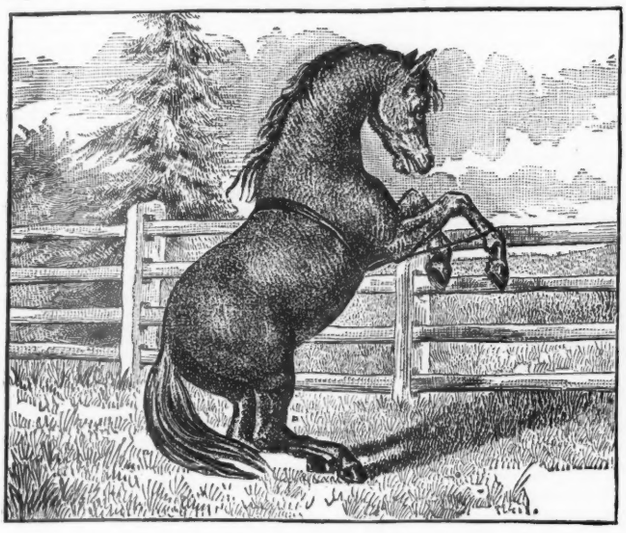


Fig. 1.—curing a horse of jumping fences.

A surcingle is placed around the body of the horse, with a ring directly under him, as seen in figure 1. A strap is then fastened around each foreleg below the knee close to the ankle, and a short strap or rope fastened in the strap around the off foreleg, passed through the ring in the surcingle, drawn moderately tight and fastened to the strap around the nigh fore foot. When this is on, the horse can move only one leg at a time, yet he can walk, lie down or get up, but he cannot put both legs forward at once, consequently he is unable to run or jump.

Shoeing a Kicking Horse.—It is next to impossible to shoe a kicking horse, but with the proper contrivance this dangerous work can be made almost boy's play. Buckle a strap around the hind foot below the fetlock joint; have a ring in the strap. Next, take a wooden pin, four inches long, and double the horse's tail over it. Pass a slip-noose over the pin, and run the end of the rope through the ring on the hind foot and with the end of the rope in your hand stand off a little distance; then say to the horse, "Take up your foot," and tighten the rope, as seen in figure 2. After a few futile kicks he will give it up and offer no further resistance. If a horse is very vicious to shoe, always use the Eureka bridle in connection with the other means.

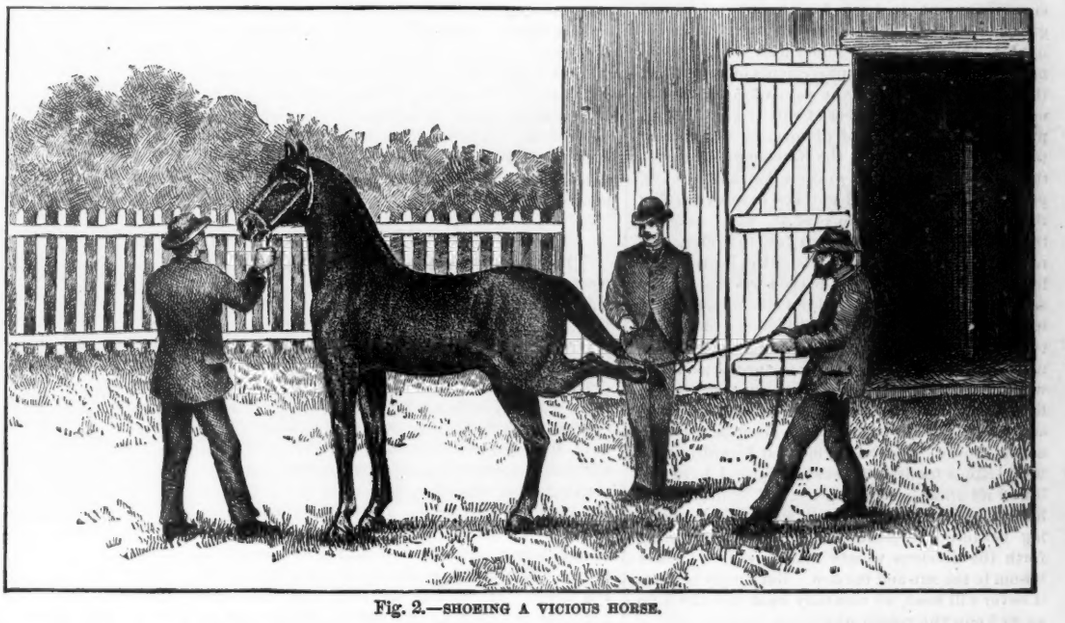


Fig. 2.—shoeing a vicious horse.

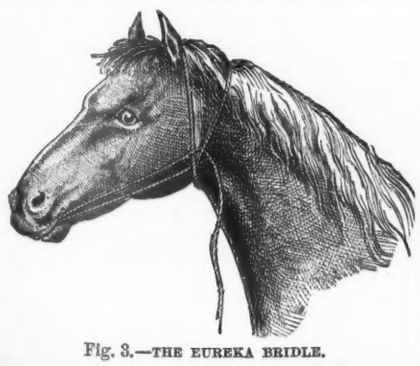


Fig. 3.—the eureka bridle.

The Eureka Bridle.—This bridle, shown in figure 3, is composed of a small but stout piece of cord, ten feet long and one-eighth of an inch in diameter, with a slip-noose in one end. To put it on, first slip the noose around the neck, pass it through the mouth over the tongue from the off-side; then through the noose on near side, and pull forward firmly over the head just behind the ears from the near side; then under the upper lip above the upper jaw from side to side, pass through second cord and fasten firmly in a bow-knot. This bridle will hold the horse so that he can be manipulated with ease.

The Double Bonaparte Bridle.—Another ready means of controlling a vicious horse is the Bonaparte bridle, figure 4. A long, strong cord, fifteen feet long, having a stationary loop tied at one end, just large enough to slip over the horse's lower jaw. Place it on the animal's lower jaw; bring it over the middle of the neck from the off side; pass downward through the loop on near side; bring up to lower corner of the cheek-bone on near side; hold there with the right thumb; pass the slack under upper lip and over upper jaw from near side; bring over the neck just behind the ears from off side; then through loop held by thumb. Do not fasten. Hold the long end in your right hand and take it back, and you then have a most powerful bridle, which will effectually stop any horse, no matter how unruly or vicious he may be, by merely giving it a sharp jerk.

For Driving "Pullers" and "Suggers."—One method to do this is, to buckle a strap around the neck with a ring underneath the neck, sewed on to the strap; take the reins and pull through the bit-rings, and buckle into the ring on the strap around the neck; here you have a purchase on the horse's lower jaw that will enable you to hold the worst puller with ease. Another plan is to take a strap seven-eighths of an inch wide and eighteen inches long, with a ring one inch and a half in diameter sewed upon each end, and two smaller rings running loose on the strap. Place the middle of the strap directly under the horse's lower jaw, and bring the ends through the mouth from opposite sides. Buckle the reins into the larger rings and the cheek-pieces of the bridle into the smaller ones. This makes a most simple and yet effective appliance for a puller.

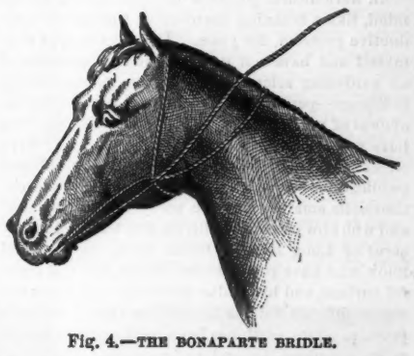


Fig. 4.—the bonaparte bridle.

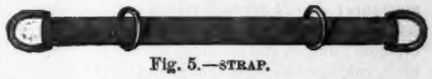


Fig. 5.—strap.

Fig. 6.—driving "pullers."

Headless Salad.

ROBERT BARNWELL ROOSEVELT.

An agricultural question has been resting on my mind, like a botanical incubus or impossible productive problem, for years. That I have kept it to myself and have not come to the headquarters of all gardening science before, is due perhaps to my diffidence—perhaps to the shame of making an avowal of my ignorance. It is difficult for me, who have written so learned a farming work as "Five Acres Too Much"—have studied all agricultural publications—have experimented as only the enthusiastic amateur has the purse or patience for, and who now own and cultivate five hundred lovely acres of Long Island's fertile glebe, as you well know who have roamed over its fair, flat and fruitful surface, and had walks and talks with its owner—it is difficult for me to confess that I find any problem of the earth has been hard or any attempt at its conquest beyond my capacity. But now, after forty years of silent waiting, I come to you—the *American Agriculturist* of world-wide fame, which I read as regularly as I do my Shakspeare—lay before you the problem and beg you to solve it. Why is it that head lettuce never heads for amateurs? Don't misunderstand me. The open-leaved amateur lettuce is sharper, crisper and fresher, more pungent and delicious than any of the city-bred, cabbage-like kind that grows in the markets. Everything the amateur raises is better than that of the professional; that faith is the sheet-anchor of our self confidence—the foundation rock of our superiority. But as a bald, bare proposition, it seems droll, if not selfish, that head lettuce never should consent to head for the unprofessional gardener. Don't say it is in the seed, for the delight of the scientific beginner with all the innumerable catalogues of improvements on everything that went before, from the days of Adam down, never grudges the number of varieties of seed he puts in. So sure is he of discovering the coming triumph—the wonder of the Nineteenth century—that expense is no object or objection, and he buys, plants, tends, waters and watches over everything that the most spirited efforts of the most imaginative seedsman can find it in his heart to offer. He reads up and studies the habits of the Boston head lettuce; puts passing faith in the sorts that are described as sure to head; follows all conflicting and inconsistent directions for cultivation; plants between rows of other vegetables, thinking that there may be virtue in that; invests in special manures, warranted never to fail, and yet, no matter what his treatment, or the seed, or the fertilizer, the result comes out the same lovely, loose leaves and nothing more. Don't imagine that I want to raise head lettuce for its own sake because I have followed all these paths to glory. If lettuce would head as persistently as it won't, we should be scolding because the professionals alone could bring forth the gracious variety that spreads its green bosom to the sun and the dew. But simply because it never will head, we naturally want to make it do so, or know the reason why.

EARLY PEARS.—In the meetings of fruit growers we have heard it said of a certain variety of pear: "It is very good if ripened in the house." If there is any pear that is not better for being gathered while still hard, and allowed to ripen or mellow in a room where the temperature is even, we do not know it. Pears should be mature, but not ripe. After the fruit has made its full growth, and has received from the tree all the nourishment that this has to give, it prepares to leave the tree. Between the end of the stem of the pear and the point on the branch to which it is attached, there appears a joint, or a line, at which the stem parts very easily. If the pear be lifted, the stem will readily leave the tree at this point, leaving a clean scar, without breaking the stem. Whenever the stem readily parts in this manner, the fruit should be gathered. Early pears ripen rapidly and decay quickly. They are usually packed in half barrels or boxes, and if packed as soon as gathered, will reach the consumer in good order, and in condition for eating. For home use, an excellent method is to spread the pears upon a blanket in a spare room, and cover them with another.

Educating Colts.

The education of the colt should commence when he is very young, and by those only who are themselves educated, or at least have common sense enough to know how. Horses of high mettle are more easily educated than those of less or dull spirits, and are more susceptible to ill training or bad management, and, consequently, may be made good or bad according to the education they receive. But horses of dull spirits are susceptible to bad management, and in them may be found the most provoking obstinacy and vicious habits of different characters, that render them almost worthless. Could the coming generation of horses in this country be kept, from their earliest days of colthood to the age of five years, wholly in the hands of good and careful managers, there would be a vast difference in the general character of these noble animals.

If a colt is never allowed to get an advantage, it will never know that it possesses a power which man cannot control; and if made familiar with strange objects it will not be skittish and nervous. Above all things, a colt should early be taught to stop at the word, whoa! He should be made to stand quietly while you are getting in and out of the carriage or wagon to which he is hitched; as the lack of this part of his education subjects the person, or persons using him, to frequent annoyance, and often serious injury. Vicious habits are easily induced in horses by tickling and plaguing them, while in the stable, and under no circumstances should ever be tolerated. Never beat or use harsh language to a horse in the stable, unless you prefer a vicious to a clever one. A horse is susceptible of taking in a vast amount of knowledge; and his education should be of the nature that will render him the most safe and useful.

The Best Tree for Prairie Planting.

R. G. NEWTON, DAKOTA.

The best tree to plant on our prairies, for quick shelter, shade and fuel, is the Box Elder, or Ash-leaved Maple (*Negundo aceroides*). It is extremely hardy, as is proved by its being found in river and creek bottoms, and on hill-sides which have been protected from the prairie fires; it is sometimes frozen back slightly the first year after starting from seed, but will make a steady and rapid growth thereafter. It is easily and cheaply raised from seed, which can be obtained of almost any seedsman. It weighs about twelve pounds to the bushel, which is estimated at about ten thousand seeds. Six pounds of seed will plant five acres, as required by the timber culture law, at four feet apart. The seed should be gathered in the fall, when ripe, and may be planted at once or kept until spring; in the latter case it is best to mix it with sand and store in the cellar; very few seeds will fail to grow if kept in this way, and the sand is easily sifted out in the spring.

The seed may be sown thickly, in drills three or four feet apart, but the seedlings should be transplanted before they grow very large, as their tendency is to send down strong tap-roots; or they may be sown in hills, four feet apart each way, planting three or four seeds to the hill; cultivate thoroughly and keep free from weeds.

Box Elder is also easily grown from cuttings, which should be made in the fall, before severe freezing weather. Two-year-old wood is preferable, cut ten or twelve inches long, tied in bundles, butt ends all one way, and stored free from frost. In the spring select a dry, sunny spot, place them on end, butts up, and cover with about two inches of light, rich soil. Shelter with sash, or oiled cotton cloth tacked on frames, and sprinkle occasionally; or cover with twelve or eighteen inches of fermenting manure. By the time the ground is fit to be worked, the cuttings will have formed a callus, and grow immediately.

For a permanent plantation the soil should be thoroughly subdued and put in as good condition as would be required to raise a good crop of corn. Rows eight feet apart, and two feet in the row, will not answer the same purpose as four by four feet, the object being to quickly shade the whole surface of the ground, and to cause the trees to grow tall and straight, with few side branches. When the trees are two years old, they can be transplanted into the prairie sod without breaking it; in which case a large hole should be dug out for each tree, and filled up with old sods. The newly planted trees should be well mulched—six inches deep, and five or six feet across, is none too much mulching—but trees so planted will not grow as fast as those in well cultivated ground.

The tree attains a hight of from fifty to sixty feet, with a diameter of eighteen or twenty inches; and although it cannot be recommended for timber, it is of great value for fuel and shelter. It grows very rapidly, can be trimmed to any shape desired, and will stand the roughest treatment. A syrup and sugar is also made from the sap, approaching the maple syrup in its richness and whiteness; a pailful of sap is said to make half a gallon of syrup.

Preparing the Wheat Land.

Begin plowing for wheat at the earliest post-harvest moment. This will prevent a growth of weeds; and you will gain the aid of the rain, sun and air in pulverizing and packing the ground. Pass, each evening, with a heavy roller, over what has been plowed during the day. As the ground is dry, there is no danger of its packing too solid, if this is done. Rolling will crush the clods, before they have hardened; it will also prevent the drying out of the ground. It is a great mistake not to follow close after the plow with the roller; the clods harden and the ground becomes so dry that part of the wheat will not germinate. Allow the ground to lie until shortly before you desire to sow. Then harrow and roll until the ground is fine and solid. Apply the barn-yard manure, just before this, that stirring the ground may mix it through the soil. The seed bed for wheat cannot be made too fine, nor too solid, if fine. No crop is benefited more than wheat by underdraining Wheat is "spewed out" by the freezing of the water in the ground. Dry earth does not freeze; no degree of cold will cause it to expand. But water expands; hence, when the water in the ground freezes it hoists the surface up and the wheat plants with it. The wet ground, being heavier than the roots of the wheat, settles down in the spring, leaving the roots exposed. Underdraining largely lessens this, because it removes all surplus water from the ground. Plants really require very little moisture about their roots. Just that amount which will imperceptibly diffuse itself through the earth, is best. More, suffocates the plant. Underdraining reduces the water in the soil to, or maintains it at, the proper amount; hence, underdraining is the most effective means against winter killing. Making the seed bed very fine and solid has much the same effect. There is no surplus of water; and the water is diffused through the ground. It is known that wheat, on compact ground, is not spewed out as is wheat on loose ground. This is sometimes accounted for by the greater resistance which compact ground would offer to the frost, and also the greater tenacity with which it would embrace the roots. But ground cannot be so compacted as to resist the expansive force of freezing water. The reason is that there is less water to expand. Besides, the grain germinates most readily in compact soil, and the plant is more thrifty in fine ground; hence, plants in such a seed bed have more vigor to endure the winter. The work on the seed bed for wheat should begin early and be thorough.

Forests and Parks.

In some cases, where a town or city desired a park or pleasure ground, the attempt has been made to secure it by transforming a piece of dense woods—it may be a portion of the original forest—into one. Such attempts have been attended by failure. Trees growing in a forest are crowded and drawn up; they have a tall trunk with a cluster of branches at the very top. When a tree that has grown in this manner is made to stand alone by the removal of the surrounding trees, it is a most unsightly object—a naked shaft, with a small, umbrella-like top. Trees so grown, lose their individual character, and are very unlike the same tree grown in full exposure, with its head formed low, and taking on the character its unrestricted branches give each tree. Forest trees thus isolated are caricatures, and the best that may be said of them is, that they are short-lived. Deprived of the support given them by the surrounding trees, these badly proportioned specimens are toppled over by the first heavy gale, and the attempt to convert a forest into a park results in failure.

A skilled landscape architect, taking a treeless area, can so plant it with young trees, that it will be constantly improving in its park-like character, while in the other case, the park made by thinning the forest, is yearly growing worse; the trees do not live, and at length, after wasting many years, the work must begin at the beginning, and young trees planted. The designers of Central Park were so fortunate as to have a nearly barren area to work upon; there was very little to undo, and much to do. The land was formerly, in part, divided into small farms, and in part occupied by the gardens of squatters; the principal trees were confined to a few old orchards. Some of the lands selected by the commissioners to be converted into the parks of the New York of the future, comprised old estates, on which some care had been given to tree-planting, and the landscape architect who designs the plans by which these areas are to be converted into pleasure grounds, will find that, instead of a barren area or a dense wood, some of the tracts present open groups of trees, such as could only result after many years from the planting of young trees. Some of these groups, one of which is represented in our engraving, were undoubtedly planted, and offer an excellent beginning to a competent landscape architect, who knows how to avail himself of the features of these park areas.

AN ATTRACTIVE PARK SITE.

Engraved for the American Agriculturist.

Adapting Crops to the Soil.

The farms of this country have a diversity of soils, while climatic influences compel the farmers to conform their crops and methods of cultivation in accordance therewith; but it may be claimed that there is no soil so poor that it cannot be made to yield a profit, provided the tiller uses it to the best advantage. In this country, the farmers rely more upon the quality of the soil than upon their own efforts, but in Europe, on the other hand, the farmer always depends upon judicious cultivation and the proper feeding of the soil.

We are prompted to the above because instances may be mentioned in which light, sandy soils, with no traces of clay in the subsoil, have been made to pay handsomely on the capital and labor invested in them, but no attempts were made to conform to a regular routine of crops as is usual on the majority of farms. The first consideration was to discover the kind of crops that would return the largest profit for the outlay, and the next to learn which were the most readily saleable and in demand. The location being favorable to the growth of fruits, and the attempt being made to cultivate them, the farms that were almost sterile, so far as grain crops were concerned, were made to yield larger sums per acre than even the banner counties of the great dairy sections.

And that our readers may understand more fully the object of this statement, we call their attention to that section of New Jersey in which is situated the county of Atlantic, and we may also include Cumberland and portions of Gloucester. What once consisted of scrub oaks and stunted pines, with pure white sand only as a foundation, now blooms annually with all the standard and small fruits of the temperate zone, and every day during the shipping season, whole trains of cars leave for market, laden with the results of the year's work. The products of this almost apparently barren section (once so considered), are probably as great as those of the same area in any other portion of this country.

Had the first settlers attempted to farm the land in the ordinary manner they would have failed; but being compelled to grow only certain crops, they selected those upon which labor could be the most profitably bestowed. It may be said that such soil required fertilizers every year. True, and the fertilizers were bestowed. Then, the soil must be kept loose and well cultivated, in order to avoid drought. This, also, was done. The trees required careful attention, the vines needed trimming, and the fruit had to be marketed when ready. All those matters that required attention received it; but it paid to do it. If the thin soils of New Jersey can be made, when necessity compels, to yield large crops of excellent fruit, there is no reason for supposing that the best of soils will refuse to do as well if, instead of cereals, they are devoted to those crops that entail greater labor but will return a large profit for the extra care. It is those crops which call for extra care and labor that enable the farmer to secure the highest prices in proportion thereto, provided, of course, there are good markets for his produce at not too great a distance.

Easy Lifting Apparatus.

Recently we had occasion to lift some articles of small bulk but of greater weight than we could overcome without help. To accomplish this we devised the implement shown in figure 1, which may be useful to many others similarly situated. We mortised a post (of 3x3 inch stuff) into a piece of two-inch plank. In the top of this we

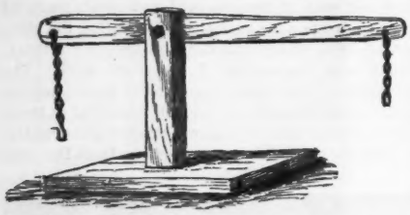


Fig. 1.—CONVENIENT LIFTING APPARATUS.

sawed a slot one and a half inch wide, to receive the lever of the same thickness, four inches wide, and with the short arm, three feet long, and the long arm, six feet long. To the long arm is fastened a piece of chain and to the short arm another piece, provided with a hook at the free end. Having the long arm of the lever twice as long as the short arm, one can easily lift a weight twice his own. It is surprising how often there is use for this. With it we lift sacks of grain into the wagon; logs on the sled or wagon or saw-horse; the bed off of the wagon; the mower over an obstruction when putting it in the barn; and for some other things nearly every day. By making the chain on the short lever long enough it can be passed around a log or sack and hooked very quickly. True, this requires some time; but the greater loss of time is more than compensated by the lessened loss of strength. When we have lifted a heavy log on the saw-horse by means of this device, we do not have to stop to rest, for we have not so severely exerted ourself that we cannot go on with our work at a good rate. The cost of the device is little, and it can be made in half an hour. The lever must be of tough wood.

But sometime we propose to make the improvement shown in figure 2, by having the long arm of the lever longer and the short arm a very little shorter, giving a greater advantage. As the short arm of the lever is brought up the free end of the chain is shortened; hence, we can lift the weight a greater height. With the first device we can lift a weight only three feet conveniently.

The Rationale of Churning.

JOHN GOULD, OHIO.

The principal object in butter making should be to get a free separation of the fats from the *serum*, so that there should be no cheesy matter left in the butter, or butter left in the butter-milk. This is a result of churning, it is true, but the separation be-

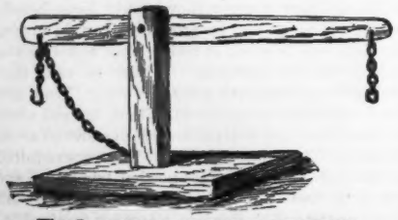
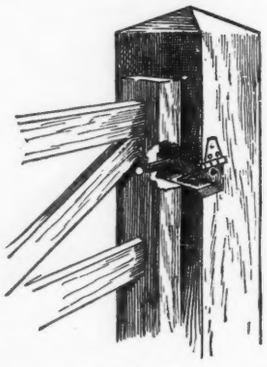


Fig. 2.—IMPROVED LIFTING APPARATUS.

gins when the cream commences to rise; a certain care for the cream as regards its temperature, and the final method of separating the butter from the butter-milk. Unless the cream is in a certain stage of preparation, churning is defeated; hence, we may say that perfect churning depends more upon the condition of the cream than the churn.

In the past, butter makers fought with an imaginary cream sac, or envelope, and to that end churns were made purposely to beat, grind and wear off this supposed sac; but later experiences prove that there is no sac, and that concussion, produced by revolving churns, is the best way to separate butter from the *serum*. Knowing this fact, we can simplify the work of churning and be almost definitely sure of getting uniform results. Now, what we need is to effect a rapid separation of the cream from the milk and remove it before the mass has soured, so that the cream globules shall not be coated with sour milk; keep the cream warm and frequently stir it to produce a mild acidity, instead of the distinct sour of longer standing; churning this cream in revolving churns, having the cream quite limpid, so that perfect concussion may be secured. There is no longer need of violent beating of the cream. All we need is the steady, constant pour of the cream as it follows the ever-presented descent of the churn.

When the butter comes, and before it is gathered, is the important time to secure the last separation. If, while it is in this granular stage—every globule yet individually separate—we introduce a couple of gallons of cold, weak brine into the churn, we complete the hardening of these globules, while the water dissolves off the remaining film of cheesy matter, and the salt, giving increased specific gravity to the caseine, sends it towards the bottom. So, if after thoroughly mixing the brine through the mass we let it stand, we see the butter all comes to the surface—with its bright, clean, yellow look—



GATE LATCH.

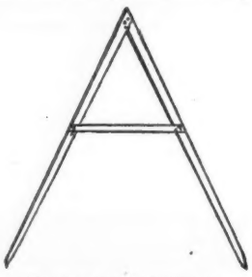
free from butter-milk. To draw this fluid from beneath the butter is but the work of an instant, and another washing with weak brine will complete a separation, that can never be so perfectly accomplished by lever working.

If this butter now be drained to some extent and the salt added in this wet condition we get perfect salting; for the moisture in the butter will saturate the salt and dissolve it, so that each little globule will be encased in this salt saturation, and when the butter is worked over, the surplus moisture will be pressed out, leaving the dissolved salt evenly distributed throughout the mass. Any more salt than can be dissolved in butter, remains in the butter as salt crystals, and does not aid in preserving it. The film of dissolved salt about each globule seals it, so to speak, from the air, and holds its color fast for the time. The addition of more salt than this is to cater to a taste for a salt flavor acquired by habit. As soon as one becomes accustomed to the salt solution salting, about half an ounce to the pound, he discovers that butter flavor, and the sharper salt flavor in butter are not in degree, but of kind, and so prefers the former. Butter, like buckwheat cakes, should be eaten when young. The practice of making butter and then keeping it for months for a "rise," is wrong. Butter never is as perfect as it is the first week; and, if possible, the production of butter should be so equalized that the consumption should keep pace with production, and do away with the summer over-supply that loads down the market, brings low prices, and consigns thousands of tons of good butter—in its day—to the grease rendering factories.

When farmers—and especially those that have home markets—have once arranged their dairies so that their milk supply becomes continuous, they will soon find a steady and permanent market for their butter at remunerative prices.

Rough Measurement of Land.

Farmers are apt to pace off plots of ground, to count fence panels, and in other "off-hand" ways to estimate the extent of plots of lands, whose size or area they may wish to know something about. It is, of course, better to have a tape and measure accurately, but the simple instru-



SIMPLE LAND MEASURER.

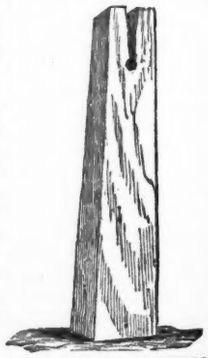
ment herewith illustrated will be found to give results closely approaching accuracy. It is in use by Mr. P. E. Twining, of Lorain Co., Ohio, who describes it as follows: "It consists of two plastering laths, or light, stiff sticks of the same size, fastened together at one end, and braced apart by a cross-piece, the whole forming a figure like the letter A. The free ends are each pointed bluntly, and are fixed accurately four feet and one inch and a half apart, which is just one-fourth of a rod. In measuring, the implement is simply revolved, keeping the upper end in the hand, and one foot constantly on the ground. The straddles being made as nearly as possible in a direct line, I can measure as fast as I can walk, and by counting the straddles and dividing by four, have the number of rods."

Novel and Good Gate Latch.

It is an object to have a gate latch that neither cattle nor the wind, nor anything else, can open without human interposition. Mr. Wm. G. Liddell, of Wilcox Co., Ala., sends the *American Agriculturist* the description of an excellent one and writes: "I enclose a sketch of a gate latch that I see in use in this southern country. It possesses marked advantages, for certain purposes, over others. It holds, to an absolute certainty, under all circumstances, and by allowing the latch pin to rest on the bottom of the slot in the post it relieves the hinges and post from all strain. The latch may be formed by a common strap-hinge, made to work very easily, and the pin should be either a strong oak one or an iron bolt or 'lag screw.'"

A Convenient Hitching Post.

Often the rider or driver finds that he has forgotten a hitching strap, and must unbuckle the bridle-rein to hitch to the ordinary post. The post shown in our engraving saves him the trouble. He can bring the bridle-rein over the horse's head, and slip it down the slot into the auger hole. The horse cannot get the rein out. Such a post is very convenient about watering troughs, etc., on the farm, where it is often desired to hitch the work horses, the halters usually being left off of them when they are taken afield, and a simple bridle-rein being used. The slot also proves convenient when your fingers are numb, and you find it very difficult to get a wide strap through the ordinary post.



A CONVENIENT HITCHING POST.

Design for a Dwelling Costing $1,200.

CHAS. P. H. GILBERT, ARCHITECT.

The accompanying engravings show the elevations and ground plans of a dwelling for a small family. Several of these are now being constructed

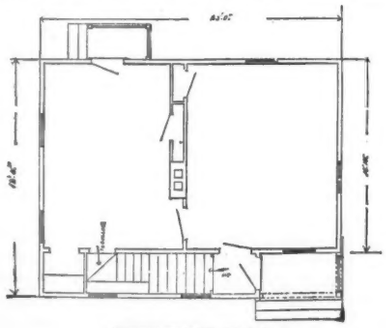
SIDE ELEVATION.

in Westchester County, N. Y., and other points near this city. We have secured the designs for our readers because these dwellings appear to give great satisfaction. These houses are of the style known as "full framed," and are built of spruce and hemlock, sheathed, with paper over the sheathing. The siding, to the top of the first floor, is of beveled pine; above the string-course, to the roof, the siding consists of California red-wood shingles. The roof is of sawn pine shingles. There is a good cellar under the entire house. The ground and second floors are so built as to have two rooms, as shown in the engraving; with a slight expense, four rooms may be made on the first floor, and three on the second. Should more room at any time be needed, an addition, fifteen by eighteen feet, can be built to the first and second stories at a cost of three hundred dollars.

Disinfecting Houses and their Surroundings.

DR. E. ENDEMANN, SANITARY CHEMIST, NEW YORK CITY.

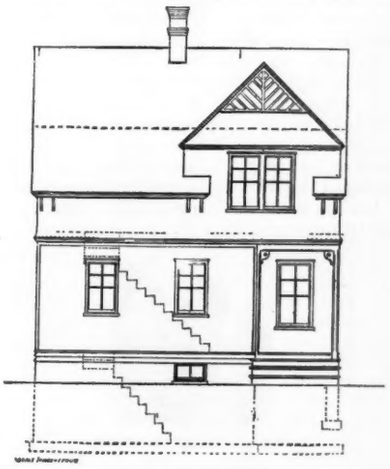
It is our duty to keep the air of our dwellings and surroundings in a healthy condition. Pure air and good drinking water are the prime necessities for a salubrious home. We find the attainment of the first, most difficult in city residences where the supply of water is obtained from a distance, while the acquirement of the latter is the most difficult in country homes. The most natural way to provide a good supply of fresh air is ample ventilation, but when the outside air is vitiated by reason of an unsalubrious condition of the streets



FIRST FLOOR PLAN.

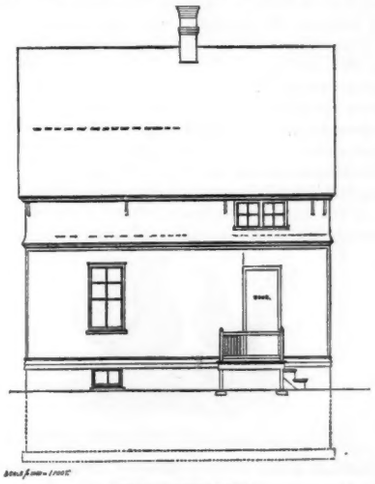
and yards of city dwellings, we must at least purify these to obtain good results. In large cities, where crowded streets are filled with tall tenement houses, the occupants make it a practice to throw much of their liquid and solid refuse into the street gutters; it is therefore indispensable to apply a remedy to these breeders of pestilence. Back-yard privy vaults, with their unwholesome stenches, must be looked after likewise. To wash out these foul places frequently is also out of the question in many large cities, since the water supply is hardly ever so abundant as to allow of such means of purification. We are, therefore, obliged to apply to these foul places such substances as will check the putrification of the contents of these foul spots, until the broom or pail can remove the cause of the trouble; that is, we must use disinfectants.

It would carry me too far to describe all the various experiments which led me to the adoption of the methods, which were for many years in practice in New York City, and are so at the present time, to a certain extent, though the service has for some time made a retrograde movement, owing to the fact that its duties devolved upon parties which had not the experience in this special branch, that I had accumulated by my extensive investigations during more than twelve years' study. The



FRONT ELEVATION.

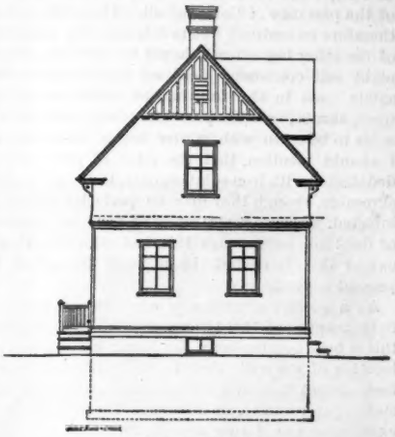
cheapest and best medium for disinfection is a solution of copperas (sulphate of iron) in water containing so much free acid, that, when the copperas is oxidized to a sesqui salt, it remains fully in solution. If copperas is used without the presence of the acid, it is speedily converted into an insoluble basic salt of *sesquioxide* with but very feeble disinfecting properties. For this reason, I have used with advantage the acid mother liquors from the manufacture of copperas. Also, the always



REAR ELEVATION.

acid mother liquors from the process of recovering tin from tin scraps. This solution is combined with a cheap, soluble, carbolic acid (No. 5) when used for the disinfection of streets, or with dead oil when used for the disinfection of privy vaults. The solution used on street gutters is composed as follows:

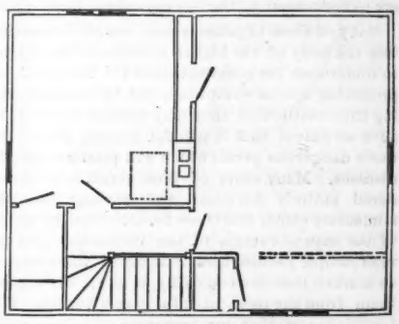
One barrel and a half of the acid iron liquor, weighing 25° Beaumé, and four gallons of carbolic acid No. 5, are intimately mixed in a watering cart of a carrying capacity of 300 gallons, with water sufficient to fill the tank on the cart. For the distribution, two pieces of rubber hose are attached



SIDE ELEVATION.

to the rear end of the cart, this hose to be so long that two men carrying the ends of the two pieces of hose, which are supplied with sprinklers and stop cocks at the end, can easily reach the street gutters on either side of the street, while the cart passes through the center. All metal connections from the tank outward must be made of brass or copper, to prevent their destruction by the acid.

Privy vaults are disinfected with about three gallons of the concentrated acid iron liquor and one gallon of dead oil, or heavy oil of coal tar, as it is variously called. As the name of dead oil might imply uselessness, I will state here, that this substance is a very good disinfectant, which quality it owes mainly to cresols it contains, and which are sometimes present to the amount of twenty-five per cent., if not more. Privy vaults, which are connected with the sewer, receive about half the quantity of the disinfectant mentioned above, while vaults which are filled, require twice and three times the quantity for thorough disinfection. While in manufacturing towns such acid iron liquors may be easily obtained, it is not so in the country. If anybody there is desirous of manufacturing such a liquor, I propose the following formula: Take six pounds of copperas and dissolve in two and one-half gallons of water, to which one pound of oil of vitriol is added. (Do not pour the water into the sulphuric acid, but the acid into the water.) This must be done in an old wooden tub, and the stirring done with a stick. When completely dissolved, add one gallon of dead oil, stir well and apply at once. This disinfectant is the cheapest that may be applied. The six pounds of copperas are worth about five cents,



SECOND FLOOR PLAN.

the sulphuric acid about two and one-half cents, and the dead oil six cents; so that one, for the moderate outlay of thirteen and one-half cents could thoroughly disinfect his privy vault. Of course, these are the wholesale prices, but nothing need

prevent a number of neighbors from clubbing together and making purchases of these not perishable articles on a larger scale. It is not the purchasing, but the consequent mixing of the ingredients, which causes the most trouble. Disinfection must also be renewed as required from time to time. The quality of the night soil, as a manure, is thereby somewhat impaired, on account of the presence of the dead oil. This latter may therefore be omitted, but in this case the quantity of the other ingredients should be doubled. Such night soil containing dead oil can, however, be safely used in the fall, but at a distance from trees, shrubs, or other perennial plants, and not on fields to be sown with winter grains for instance. I should mention, that the odor of privy vaults disinfected with iron solution only, is decidedly disagreeable, though they may be perfectly well disinfected. The powerful smell of some ingredients of dead oil overpowers this bad odor to such an extent that it cannot be noticed, though it is present nevertheless.

As a second condition of a wholesome home, I have mentioned that the water must be pure, and this is best accomplished by being careful in the location of the well—that is, the well must be so located that it cannot receive drainage from the stable, privy vaults, or kitchen. These nuisances existing on our farms should, therefore, not only be at a certain distance, but, likewise, in such a position that with the movement of the subsoil water their contents are not carried to the well. In a wide valley, with scattered dwellings and gravelly subsoil, and a knowledge of the movement of the subsoil water, this can be most readily accomplished. With a rocky subsoil the difficulties increase. Our water is almost always taken from a lower level than is reached by any of these sources of danger mentioned, and the dip of the rock fissures therein, and general permeability to water must be carefully taken into account. That all these points are not often considered, and that many country wells are dug in localities not compatible with these precautions, is a well-known fact. The best remedy under such circumstances is to change the location of the well, or any of the nuisance breeders which may tend to its deterioration. In many localities people depend entirely upon rain-water, collected in tanks or cisterns, for home supply. Cleanliness, considering the cistern, is often out of the question, as each rain will carry into the tanks more or less impurities from the air and roofs, which must tend to the deterioration of the supply. The same difficulty occurs on ships, which, on long voyages, have to supply themselves with sufficient water to last for months to come. It is only under such circumstances that the application of antiseptics to water is justified.

There has but one remedy so far been proposed which has given satisfaction, and this is salicylic acid. By boiling and subsequent cooling tainted water, it can likewise be freed from objectionable organisms, and thus be converted into wholesome drinking water, for it is not so much the products of the life or the excreta of these organisms which are to be avoided, as the live organisms themselves.

Many of these organisms may, simply by passing into the body of the higher animals, or man, tend to undermine the constitution of the body without producing special symptoms, but by so undermining the constitution they may weaken the body to such an extent that it will fall an easy prey to the more dangerous germs which will produce specific diseases. Many other of these germs may be rendered entirely harmless, and passing into the alimentary canal, will there be destroyed by means of the natural excreta of the intestines. But the microscopic peculiarities of many of them are not so marked that one can easily, or at all, distinguish them from the most harmful germs known. It is for this reason that our homes should be scrupulously clean, and that our water, used for drinking, should be well selected.

While, therefore, the body may be to a certain extent, immune to the attacks of many organisms, or by others but slightly affected, certain germs produce diseases of greater or less virulence; they are germs producing well defined diseases; their headquarters is the infected body, from which the disease may be transmitted to healthy bodies, and produce what we call contagious diseases; that is, diseases transmitted by contact with an infected body. That in many cases direct contact is not necessary to produce the disease, is well known, for the breathing of the same air with a sick person, is frequently sufficient for transmitting the disease.

Ornamental Fowls—Bantams.

Bantams are the gems of the poultry family, and possess that grace of motion, luster of plumage and cuteness that is always admirable. They are seldom met with on farms; nevertheless they possess merits of a high order, and if we compare their cost in food and their egg production with that of the large breeds we will be compelled to pronounce them the most economical fowl we have. The amount of food necessary for their healthful growth is very small—not over one-fifth of that required by a cochin, and they stand confinement so well as to require but small enclosures. Naturally tame, they cause little trouble as foragers, and require only a reasonable hight of fence. As layers, bantams are exceedingly generous, and, while the eggs are small, yet it is a fact, instantly to be noted through a practical experiment, that their eggs are nearly all yolk, and especially rich. Let the invalid with a dainty appetite, or the epicure longing for something tempting, drop, for a moment only, a bantam egg in boiling water, and note the delicious richness of the dish. As mothers, the bantams are highly valued, and, like all little folks, they are quick and courageous. Utility is but one of their merits, as they possess a beauty of carriage and richness of plumage that, with their gentleness and jaunty airs, enlivens their surroundings, and endears them to their keepers.

Fig. 1.– PEKIN BANTAMS.

Among the handsomest varieties are those illustrated in the accompanying engravings, drawn from specimens raised on the private grounds of Mr. Belmont Perry, Woodbury, N. J. The most prolific are the bunchy looking birds with the heavily feathered legs. These are called Pekins, because the first of them brought to England were taken by English officers from the palace yards of the Chinese Emperor, in the City of Pekin. This was in 1860, during the Franco-Chinese war, when the palace was sacked by the French troops, with whom were associated at the time, these Englishmen.

In color the hens are a bright golden-cream; the males present a rich mahogany hue. Yellow legs, red single combs, short, fluffy tails, and heavy boots, finish off these cosy-looking little Mongolians.

Silver-laced Sebrights, so named from their originator, Sir John Sebright, of England, are the prettiest gems in the collection. The body color of the feathers is white, each feather being bordered with a narrow lacing of black, so even and true as to suggest an artist's lines and to astonish the beholder when it is known that they are a "made-up" breed, the result of twenty years, or more, of persevering experiment in crossing. The males are peculiar in that they are hen-tailed and hen-feathered, not having any sickle, saddle or hackle feathers. This trait is only seen in the Sebrights. They are great layers, lively and hardy. A flock of them on a green lawn presents a pretty picture.

Fig. 2.—SILVER-LACED SEBRIGHT BANTAMS.

Japanese bantams are, as one would suppose, knowing their nativity, odd and grotesque. The only bantam from Japan, they do credit to the land of the Mikado, and put on all the airs of a "Lord High Everything," as though nature intended that they should lead their fellows in the path of beauty and graceful motion. Their wings are held slightly drooping, and often touch the ground as they walk, and almost hide their short, clean, yellow legs. The color is white, except a few flights in wings and the tail, which are black. The tails of the males, however, have a narrow lacing of white around the outer edge. The head is very small and shapely, surmounted with a high, single comb, which nearly meets the high, arching tail. Beautiful in form and motion, gentleness itself, and bountiful in their supply of the tiniest eggs laid by any variety of fowls, these little Japs are highly valued. They breed remarkably true, and to see one of these fifteen-ounce mothers with a flock of her own chicks, is to remind one of a flock of Canary birds, and if the daily feeder of the flock goes near, he is instantly surrounded and taken possession of, wherever they can find a lodging place.

Fig. 3.—JAPANESE BANTAMS.

American fanciers thus far have introduced but one variety of bantams—the diminutive White Polish—with the wonderful shako of the drum major, or perhaps we might say, the white plume of the grenadier. They are a new variety, and have not as yet attained the hardihood characteristic of many breeds. They lay fairly well, and are the least inclined to sit of any. Their color is a pure white in feather, with white legs; and they are coquettish in manner, timid yet gentle, and make delightful pets. They are still quite rare and high-priced, but so handsome as to soon become general favorites. Their chicks, as soon as hatched, show the top-knot, and this gives them a very comical appearance.

Fig. 4.—WHITE POLISH BANTAMS.

Japanese Silkies, a most interesting variety, are not exactly bantams, yet are mainly sought for their oddity, and for the success they always have in rearing pheasants. They have no feathers, being covered with white, silky fur, as soft as swan's down. The skin is black, and ear-lobes blue. The top-knot gives them an animated appearance, which effect is heightened by their very large, bright, black eye. They are hardy, and lay fairly well. As curiosities, they are unique, and always attract much attention.

All the summer months are the months for hatching bantams, but August and September present the season *par excellence*. The chicks are easily raised, care being taken to keep them from much dampness the first two weeks. The eggs bear shipment equally with those of the larger breeds. If you wish to enliven and beautify your lawn, or please the ladies and young folks, and at the same time afford some dainties in the egg line at a small expense, indulge in a few bantams, the *multum in parvo* of the fowl kingdom for beauty and utility.

Importing the Wild Hog from Europe.

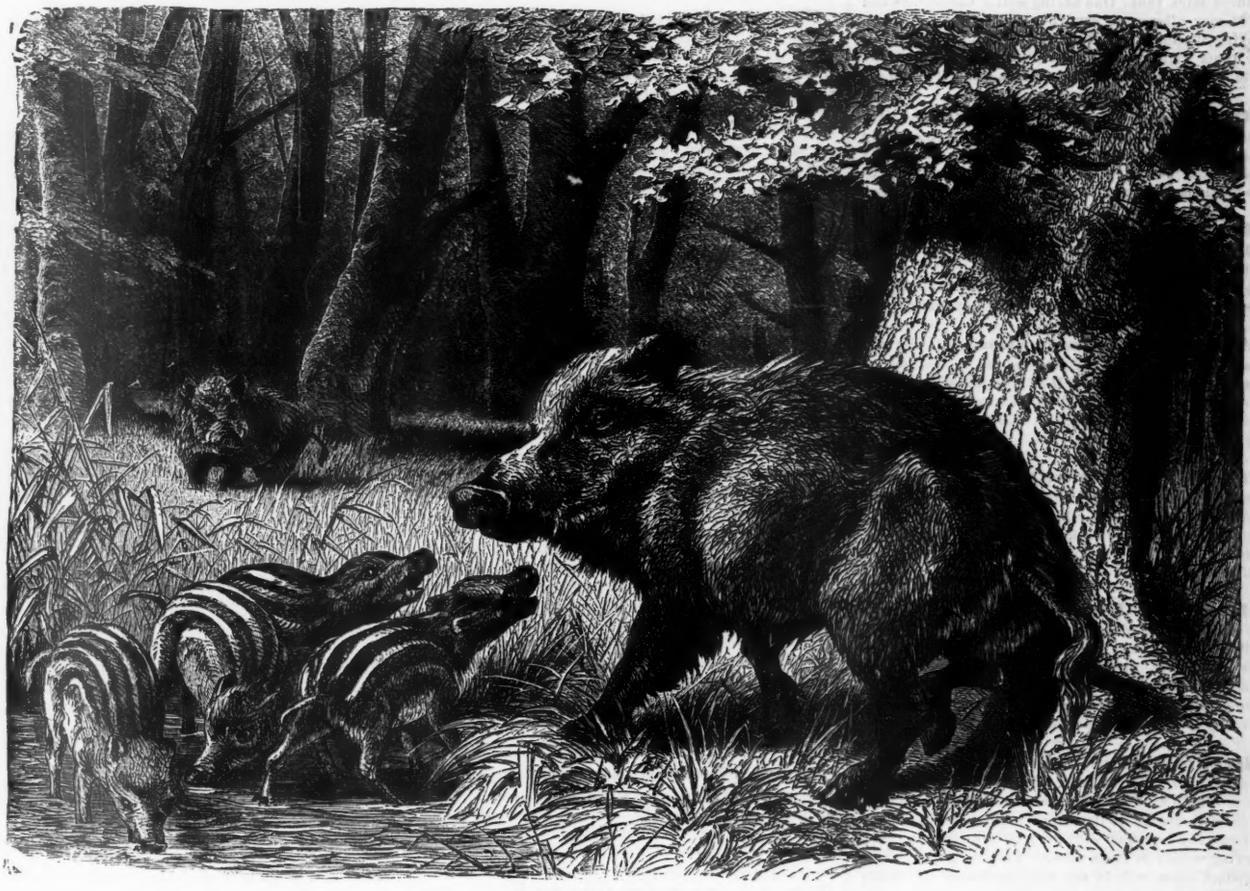
There is a deal of romance which surrounds the simple mention of the wild boar. He is the gamiest game of Europe. He is the savagest fighter of all the wild beasts of the Eastern hemisphere north of the tropics. Wolves and bears are craven cowards, even when in close quarters, compared with the wild boar. He fights until he is actually killed by spear thrusts, or by shot, or torn to pieces by dogs. He fights not to save his own skin, but for his charges. Several sows and their progeny, up to three or four years old, form a herd led by one grand old boar. In case of danger, the weaklings go to the center of a circle formed by the stronger ones, and the old general awaits the attack and meets the foe. They do not seek battle, but avoid it, and they are not dangerous until close pressed, and then they will not pursue. Thus they do not interfere with the occupations of the woodsman, or with travelers through the forest, but mind their own business, if not molested.

They are said to be the original source of all our common swine; but if so, some notable characteristics have been entirely lost. One of these is, that the young when farrowed, are striped—yellow or tawny, and black. The stripes disappear after a few weeks, but when the pigs are quite young are very noticeable. This is seen in the fine engraving we present of a wild sow and her brood.

The hunting of the boar is still regarded as a national sport in Germany, and there are several forests where wild hogs are preserved with great care. They have their full freedom, and the herds are kept reduced to just about that number to which the forest will afford sustenance. The result is, that the autumn and early winter markets are kept well supplied with "black game." This is really very delicious eating, and the "boar's head" crowned with ivy, still graces many a feast.

During the past winter, Messrs. Chas. Reiche & Co., of this city, imported several wild hogs—adults and half-grown pigs of both sexes. Two boars were purchased by the proprietors of a large public garden, and given the range of some extensive grounds until the "wild boar hunt" could be extensively advertised, and then, in an enclosure used for base ball playing, in the presence of many spectators, they were hunted down and dispatched. The pigs died game. The rest of the little herd—five in number—have been given their liberty in a mountainous tract of woodland, situated in Sullivan Co., N. Y., about one hundred miles from this city; it is apparently well adapted to their needs. They will be allowed to multiply until the wood is stocked.

There are many sections, thousands of acres in extent in this country, in which these animals might well be bred; and, if kept pure, there might be, after a few years, every autumn, fine sport—not unaccompanied by danger, which always adds zest to sport. Besides, the flesh would be eagerly sought for in the market, and the boars' heads alone, if well tusked, would sell at Christmas time for more than the entire hog. It seems surprising that the wild boar has not been imported before this by some of our wealthy sportsmen, and made at home in some of our extensive forest ranges. We shall watch with interest the experiment, and make known to our readers the progress and results.



WILD HOGS.

Engraved (after Brehm) for the American Agriculturist.

Raspberry Canes.—After the fruit has been gathered from the raspberry, that cane is of no further use, and in due time will die. Cultivators differ as to the time for removing these old canes. Some cut them away as soon as the fruit is off, while others leave them until late in fall, thinking that the old canes may contribute something to the growth of the new ones that are to bear fruit next year. The best cultivators cut away the canes soon after fruiting, as they are out of the way, and do not interfere with the new canes.

The Curse of Dairying.

The dairymen who are the most successful are those who seek to improve their stock; but, as yet, there are but few who attempt to do this, despite all the efforts that have been made in that direction. The proof of this is in this fact; visit any dairy section we may, we find that a large number of the dairymen keep scrub bulls. It is not because they do not know the value of good breeding, but as they sell their calves and buy their fresh cows, they do not consider it an advantage to use any but the scrubs, the calves possessing but very little value.

But the mischief does not end here. These dairymen expect to buy cows, and as they keep only scrub bulls—and others do likewise—from what source can they expect to procure meritorious animals, especially as many of them purchase from drovers, or wherever the fresh cows can be procured? We can demonstrate that it pays better to breed good calves and raise the females for the dairy, than to sell off the cows when they are dry and substitute others in their place—though custom has made the selling of the calves, at an early age, a method not easily discarded; but as long as such is the practice, just so long will the miserable scrub bull be allowed a place in all such dairy herds. He not only sires calves that are really valueless but he sires the majority of the future cows, as may be noticed by an inspection of many dairy cows, the owners of which shake their heads dubiously over the recorded feats of thirty quarts of milk, or three pounds of butter, per day from noted cows; yet, if they would discard the scrub bull, they would witness an annual improvement, on the average, with all the herds, that would add many thousands of dollars to the value of the dairy products. It is well to urge good feeding, pure water, dry quarters, and clean management of the milk and butter, but the most important matter of all, is for dairymen to keep pure-bred bulls.

OUR BASKET

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or, a small club may be made a large one at reduced rates, thus: One having sent 5 subscribers and $6.00, may afterwards send 5 names more and $4.00, making 10 subscribers at $1.00 each; and so for any of the other club rates. Subscriptions can begin at any time, as every number of the paper is complete in itself.

Bound Copies of Volume 44 (for 1885), are now ready. They are uniformly bound, in cloth, gilt backs. Price at this office, $2. If sent by mail, $2.30. We can usually supply at same rate any of the previous volumes, *i. e.*, from volume 16 to 44 inclusive.

Department of Agriculture.—L. Elder, Putnam Co., N. Y. The salary of the commissioner of agriculture is $4,500, and the entire annual expenditures of the department are about $500,000; the seed and plant distribution cost $100,000 annually.

American Nurserymen.—At the annual convention of the Nurserymen's Association, recently held in Washington, D. C., the following officers were elected: President—C. L. Wartrous, Iowa; first vice-president—M. A. Hunt, Ill.; treasurer—A. R. Whitney, Illinois.

The Flight of Swallows.—In Europe, two hen birds were recently taken from their broods, carried to a distant city, and released at a given hour. Both birds made their way back to their nests in thirteen minutes, their rate of speed being eighty seven and a half miles an hour.

American Florists.—The annual meeting of the Society of American Florists will be held in Philadelphia, August 18th, 19th and 20th. This promises to be the largest and most interesting meeting of the kind ever held. Special railroad rates over most routes have been secured. Circulars may be obtained from the secretary, E. G. Hill, Richmond, Ind.

Orchard Grass in Minnesota.—F. Ellwanger, Otter Tail Co., Minn. No doubt Orchard Grass will do well without extra care. We have no facts at hand in regard to its success in high latitudes, but it bears any degree of cold here, as also freezing and thawing, which is much worse. Your steady cold and abundant snow, will, in our opinion, insure its winter ing well.

Clearing Out a Pond.—K. K., Crawford Co., Pa., has a pond or small lake, the margins of which bear a dense growth of water lilies and other aquatic plants. He wishes to clear out this growth, and asks how to do it. The water lilies have enormous stems which lay upon the bottom of the pond, and send roots into the earth. A heavy grappling hook worked by a horse, would probably be the best implement to tear up the various stems and clumps of roots. To dispose of the material, let it dry, and then burn it.

Whitewash for Outdoor Use.—R. A. Moore, Somerset Co., N. J., and several others. Common whitewash, which consists of lime and water only, lasts but a short time when exposed to the weather, hence, various articles are added to increase its durability. One of the simplest of these washes is made by slaking half a bushel of lime with boiling water. When thoroughly slaked, dissolve in water and add to the lime two pounds of sulphate of zinc (white vitriol), and one pound of common salt. This wash is very white; if desired of a beautiful cream-color, add three pounds of yellow ochre.

Cut-Worms.—H. O. Miller, New Haven Co., Conn., writes us that he can raise scarcely anything in his garden on account of the cut-worms, and asks what is the best thing to stop the ravages of these pests? The most successful treatment we have heard of is poisoning. Cabbage leaves are first moistened, and then dusted with a mixture of Paris green, one part, and twenty parts of flour. The leaves are laid—poisoned side down—about the garden, at intervals of fifteen or twenty feet. Two such applications, at intervals of three or four days, it is said will clear the land of cut-worms.

Homestead Exemption.—The laws of most States, exempt family homesteads from attachment for debt, but limit the value of the homestead and personal property exempted, to some definite sum. An unmarried man cannot claim a homestead, but he may retain, exempt from attachment, the necessary tools and books of his trade or profession. In answer to the inquiry of George Ferguson, of Pierce Co., Washington Ter., we can only advise that his friend, "A," should get married at once, so as to be able to claim a homestead against his creditors when his pre-emption patent is secured. Thus he will save part, at least, of his claim.

The Bee-Killer Fly.—W. T. Higgins, of Georgia, writes us that "the dragon fly, or mosquito hawk," is eating his bees, which they catch both when coming in and going out of the hive. This fly is not uncommon in the Southern States. It is, no doubt, the *Asilus Missouriensis*, and has taxed the ingenuity of bee-keepers a long time to prevent their depredations. They are easily frightened, and so are the bees, and though they may be caught in insect nets, the bees would surely be irritated. There are, besides, several other flies of allied genera and similar habits. The one above-named looks most like the common dragon fly.

Inflammation of the Lungs in Swine.—The common indications of this disease are—loss of appetite, incessant and distressing cough, and heaving at the flanks. These symptoms are generally followed by constipation of the bowels, and dark-colored urine. The old practice was to bleed freely, but this is a questionable remedy; purgatives must be given, but cautiously; also niter, the dose made according to age and condition of the pig. Keep the patient dry and warm, and feed bran mash with a handful of oil meal; turn into pasture on warm days.

Agricultural Education in Belgium.—P. De Vuyst, an amateur student in the High Agricultural School of Louvain, a department of the University of Louvain, sends us the programme of the agricultural studies, which extend over a course of three years. This includes all the elementary studies related to agriculture, besides several that find no place in our agricultural colleges—such as rural economy, rural buildings, agricultural law, social law, etc. Belgium stands first among the countries of Europe for the high condition of its agriculture. This excellence is largely due to the thorough education its farmers receive at this school of Louvain, and at another, managed by the Government, at Gembloux.

Lawn Mowers.—The progress in the manufacture of lawn mowers is something wonderful. Only about twenty years ago the few lawn mowers that were in the country were imported from England. Now, we send large numbers of mowers to England, as well as to all other civilized countries. The lawn mower was invented by Edward Budding, Gloucester, Eng., in 1830. In its original form it was a cumbrous machine, which severely taxed the strength to work it. The improvements in this country have been numerous, and in the direction of lightness and simplicity, and the most recent patterns, appear to have reached a point where further simplicity does not appear to be possible.

The American Exhibition.—Our English exchanges state that there is already much interest manifested in the exhibition of American products and manufactures, to be held in London in 1887. If there is to be such a fair, let us make it a creditable one. Manufacturers of agricultural implements and machinery, will, no doubt, find it to their interest to exhibit their wares. The products of the soil, including forests, will come off poorly if left to individual effort. The Board of Agriculture of each State may well take up the matter, and begin early to prepare a representative Exhibition for each State, applying early to the Legislature for funds to meet the expenses. The American Exhibition should not be a failure.

What is "Blue Thistle?"—Last month, a Maryland subscriber asked about killing the "Blue or Canada Thistle." Assuming that this was a local name for the Canada thistle, we gave it as he had written it. Since then several subscribers have written us that in some parts of Pennsylvania and Maryland the name "Blue Thistle" is applied to Viper's Bugloss (*Echium vulgare*), which is also known as Blue Weed and Blue Devils. It is strange that any one should call this plant a thistle of any kind, as it is unlike one in general appearance, and very far from it in its botanical relationship. "An old subscriber," at Chambersburg, Pa., proposes to cut off the roots of the plants, "and cover the ground six inches deep with strong, coarse salt." This would, no doubt, kill the Viper's Bugloss, and would very likely be fatal to any other plants that may be sown in the soil.

Butter-Preservative Salt.—The action of salt in butter is not to preserve the butter so much as it is to remove the butter-milk and the impurities, the causes of fermentation and rancidity, which the butter-milk contains. Salt has, however, a slightly preservative effect. Some perfectly innocent preservative has long been sought, which, while it should not change the flavor of fresh butter in the least, would preserve it from any change—even when exposed to atmospheric influences for a long time. This, Mr. Kellogg supposes he has found, and he brings strong evidence to show that he is correct. We have used and are using this salt, but can only give negative evidence so far—as it does not change the flavor of the butter, it does not effect unfavorably the health of the family, and, so far, the butter does not go wrong.

Another Enemy of the Apple Tree.—We have received several specimens of a minute beetle from U. L. Mowrey, Providence Co., R. I., which he found boring into and through branches of his apple trees. It appears to be a hitherto unknown enemy of the apple, at least, we find no mention of its habits or food in entomological works. Its scientific name is *Xyleborus obesus*, and it was first described by the late Dr. John L. Le Conte, in the "Transactions of the American Entomological Society," for 1868. Dr. Le Conte reported that this species had been found in Virginia, Massachusetts and Canada. The beetles are about one-eighth of an inch long, and rather stout, cylindrical, blackish-brown, and clothed with long, soft, erect, pale colored hairs. Its antennæ are of a reddish-brown, and the head, convex, coarsely, but not densely punctured. It is closely allied to the Pear Scolytus (*Scolytus pyri* of Peck), described in Harris' "Insects Injurious to Vegetation," but differs from it by its stouter form, and by the absence of the small, acute tubercles on the sloping tip of the elytræ, or wing-covers. This insect is likely to become a dangerous enemy of the apple and nearly related trees, and it would be well for orchardists throughout the country to be on the lookout for this pest, and all infested branches and twigs should be carefully cut off and burned, in order to destroy both larvæ and the mature insects.

Blister Beetles.—C. Ch. Th. Osius, Comanche Co., Kan., sends us a large, black and rather soft beetle, nearly an inch long, which he says visits his garden every summer, feeding upon the leaves of the tomato and potato. This is one of the many species of blister beetles, more or less abundant in the Western States. We do not know of any common name for this insect, but its scientific one is *Macrobasis segmentata*. It might appropriately be called the Ringed Blister beetle, because each segment or joint of the body is terminated with a fringe of white hairs having the appearance of narrow white rings. This species of blister beetle was first described by Thomas Say, in 1824, under the name of *Lytta segmentata*, but later entomologists have divided the great family of blister beetles into several genera, and the species under consideration is placed in the genus *Macrobasis*. Mr. Say found the insect in Arkansas, but it is more or less common all over the Western prairies and plains; often visiting gardens in search of its favorite kinds of food, which appear to be the tomato and potato, although they often attack other kinds of plants. Unlike the Colorado potato pest, the blister beetles do not lay their eggs on the plants which they infest, but deposit them in the ground where the larvæ or grubs hatched therefrom can obtain animal food, consisting mainly, at first, of the eggs of grasshoppers, flies, bees, wasps and similar insects; and later, the larvæ of most of the species, if not all, become parasitic on other species of insects, and it is a question whether the blister beetles, as a family, are more injurious than beneficial to man. When they appear in great numbers, stripping the leaves from potatoes, tomatoes or devouring asters and other flowering plants in our gardens, we are inclined to consider them a great nuisance; but, when in their larval stage, they must have destroyed a vast number of the eggs, grubs and pupæ of other noxious species. The blister beetles are not readily destroyed with poisons, as they usually fly or drop to the ground when disturbed, and they will avoid plants dusted with Paris green or other poisonous compounds. They may, however, be collected with an ordinary sweep net, such as used by entomologists. The ordinary striped blister beetle may be quickly driven from a field or garden by beating the infested plants with a broom or the twiggy branch of tree or shrub.

Iowa Agricultural College.—Prof. Wm. I. Chamberlain, for so many years the efficient Secretary of the Ohio State Board of Agriculture, has been called to the Presidency of the Iowa State Agricultural College at Ames, Iowa. This institution is fortunate in securing so competent and able a man for its head.

The U. S. Fruit and Vegetable Grower's Association.—This association, which is a national one, met at Columbus, Ohio, on the 17th of last June. The papers and discussions were full of interest, especially those relating to the best methods of preparing fruit for market, and preserving it for family use. The president is S. G. Chilcoat, of Ill. The secretary is W. Orlando Smith, of Ohio. The board of directors comprises fruit growers from California to Pennsylvania. The next meeting will be held at the Southern Hotel, St. Louis, Mo., on Dec. 9th, 1886.

Precocious Chickens.—E. J. Appleton, Munroe Co., West Va., writes us that he has a hen which hatched six chickens on the 15th of February, last. Three of these were pullets, which began to lay the last of April. On June 14th he had chickens from these eggs, and one of the pullets has stolen her nest and is sitting. None of the chickens were protected, but have lived out of doors all the time. We infer that our correspondent is a youngster, as he asks: "Can any of your boy subscribers beat this?" He does not state of what breed these pullets are, but we suppose they are light Brahmas, as these are the most precocious of any within our experience.

Blasted Strawberries.—D. Noble, Waupacca Co., Wis., writes us, with reference to an item in July last, in which blighted strawberry blossoms, in Dodge Co., Wis., are mentioned, that he had a large bed of the Crescent variety which came in bloom very early, and while they were in flower there was a very heavy frost. After this he noticed—as in the case of those mentioned in July—that the blossoms had a dark center, and instead of seven hundred quarts as gathered last year, his crop, this season, was only forty quarts. All the later blooming varieties—the flowers of which escaped the frost—bore as usual.

Cows Chewing Bones.—Elwyn W. Barney, Hampshire Co., Mass., writes us that E. P. Sawyer, of Vermont, states that his cows chew bones, old shoes, etc. (See June *American Agriculturist*). In this section cows will chew sticks, etc., and if not attended to it will result in a disease known as "Bone-ail," which can be told by a swelling appearing on their hind legs, below or on their hips. Here, we give them bone meal, which cures their taste for old shoes, wood, and other things. We prefer the bone meal that is yellow, and has a strong scent, to the white kind that looks like marble dust. This disease is common where there are old pastures, and the soil is worn out.

The Sugar and Rice Crops—A Better Outlook.—Mr. F. C. Squier, formerly of the *American Agriculturist*, now in New Orleans, in a pleasant call, informs us that the Southern planters are greatly encouraged about the success of the coming sugar-cane and rice crops. For some time, in the early part of the season, it was feared that the severity of the cold wave, which swept the Southern States last January, had completely destroyed the stubble, but fortunately this has not been the case. In 1885 a million sacks of rice were raised in the State of Louisiana, and this year's crop will probably be even larger. It is to be hoped that the domestic crops will soon be large enough to obviate the necessity of importing rice in such quantities as at present—fully fifty-five per cent. of rice consumed in the United States being of foreign importation.

Hay Conveying in a Long Barn.—John Rossbeck, Newton Co., Dak. Your barn, one hundred and ten feet long, and fifty-five feet wide, with a twelve-foot floor running lengthways through it, will have a great amount of waste room. Your hay bays or mows will be about forty-eight feet at the base, and will be contracted by the slope of the roof. An unloading fork might easily be hung over the front side of a mow, so that the hay would be dropped only a little way back from the edge, and then carried back. The fork would have to be shifted several times in filling each side. If, however, your barn floor crosses the barn at or near the middle, you would have much more storage room, and a fork conveyor might easily be arranged to deliver the hay at any point along under the ridge, and the barn could be filled almost up to the ridge-pole, adding greatly to its capacity.

Summer-Layering the Grape.—As soon as the shoots of the present season have become so firm that they may be handled without breaking, and that there is no danger of rotting when buried, they may be layered. Select a shoot that starts from the lower part of the vine, and lay it on the ground; then, as near under its center as may be, with a spade, make a broad hole or hollow, into which bend the shoot, and cover it with a few inches of soil; the extremity, or part of the shoot not buried, should be tied up to a stout stake. To keep the earth over the layer moist, some flat stones may be used as a mulch. When the leaves have fallen in autumn, the layer may be lifted, and cut away from the old vine. The roots will often be so abundant that the layer may be divided and form two plants instead of one. The rooted layers may be heeled-in during the winter, or kept in damp moss in the cellar.

Saving Dry Earth.—The cheapest of all disinfectants is dry earth, and a supply should be secured during a dry time for future use. Dry earth does not mean dry sand, but a good, strong loam. No matter how dry the surface of the soil may appear to be, it never becomes perfectly dry, as more or less moisture will come up from below by capillary attraction. To completely dry the earth, a drying platform of old boards should be constructed, upon which the surface soil may be thrown; being cut off from all moisture from below, a few hours of exposure to the sun will dry it completely. It should then be run through a sieve or riddle to remove stones and trash, and the fine earth placed in barrels or boxes, and stored under cover. The use of a road-scraper to draw the earth upon the platform will greatly diminish the labor. Lay in an abundance, for use in earth closets, privy vaults, hen-houses, or wherever an unpleasant odor is to be stopped.

Salting Pickles.—The summer, as usual, brings various questions about pickles. Under the impression that they are profitable, cucumbers are planted without any definite idea of what is to be done with the crop. If one is within reach of a pickle factory, it is best to contract to deliver the pickles just as they are gathered, the sizes and prices being specified. Cucumbers should always be cut, leaving a short piece of stem attached, and the vines should be gone over daily, or at least every other day, otherwise some will grow too large. If the cucumbers are to be salted, whisky barrels are preferable. The salt should be of the purest kind, and contain no lime. Half a bushel of salt is required to the barrel. Take out one head of the barrel and lay in the cucumbers, sprinkling salt among them. When all are in, put on a follower with weights, and add water enough to cover the pickles. When the barrel is full, head it tight, having added all the salt, and then fill it with water through the bung-hole.

Compost Making.—John H. Crane, Hamilton Co., O. The pug-mill plan involves too much labor. The mixing can be better and quicker done with fork and shovel. The object in making a compost is to convert refuse vegetable or animal matter into a substance which will quickly blend with the soil and form food for plants. The materials which form the basis are leaves, sods, peat, swamp muck, any vegetable matter easily decomposed, one or all. To quicken these and promote partial decomposition, we mix barn-yard manure or the solid excrements of animals, and pump liquid manure over the heap; or, leaving out the manure we add lime, or wood-ashes which act quickly, and to such a lime or ashes compost, bones in the form of bone-dust or tankage, will add both phosphates and nitrogen. The heap is worked over as often as it heats, and to prevent the loss of ammonia, gypsum is added. "Acid Phosphate" being in condition, practically of immediate availability, can be applied directly to the soil.

Chicken Cholera.—D. M. Stewart, Allegheny Co., Pa., asks us for a remedy. The disease is regarded as malarial in its character, and is spread by the excrements of the affected fowls. It is a disease affecting primarily the liver, and is marked by diarrhœa and green droppings. Separate the healthy fowls, thoroughly renovate the old floors and roosts, purifying with lime and carbolic acid. Give the floors and roosts of the new quarters a thorough whitewashing, and subsequent dusting with lime, and sprinkle with carbolic acid water every few days. Drs. Dickey and Merry, who carefully investigated the disease, recommend the following pills: Blue mass, sixty grains; camphor, twenty-five grains; cayenne pepper, thirty grains; rhubarb, forty-eight grains; laudanum, sixty drops; made into twenty pills. To the ailing, give one every four hours until they act freely; then a teaspoonful of castor oil. To the well, give one pill, followed by the oil.

A Mangy Mare.—P. F. Sawyer, Windham Co., Vt. Your mare, that has the intolerable itching, the hair coming off in spots, no doubt is afflicted with an attack of one kind of those minute parasite insects which produce mange in horses and dogs, scab in sheep, etc. The cure is at times somewhat difficult, but the disease yields to repeated local applications. There is no need of giving medicine internally, although sulphur in the food is a mild cathartic and permeates the whole body, probably aiding in the cure. The mangy surfaces should be thoroughly washed with warm soap and water, using a brush and soaking and rubbing off the scabs and scarf skin. Strong carbolic soap may be used to advantage. Then a carbolic ointment made by rubbing strong carbolic soap with lard, in the proportion of one part soap to two of lard, may be applied and well rubbed in by the hand. The veterinarians recommend an ointment of one ounce oil of tar, twenty ounces whale oil, or half a pound each of tar and sulphur, and one pound each of soap and alcohol. We think the carbolic ointment just as good, or better.

The New Veterinary Law.—We note with satisfaction the recent passage of an act, by the Legislature of New York, making it a misdemeanor for anyone to practice veterinary medicine in the State, unless duly registered in the office of the county clerk, of the county in which he resides. To be entitled to registration a person must be a graduate of a regular veterinary college or hold a certificate of qualification from a legally incorporated veterinary society; and, also, any person having practiced veterinary medicine for a period of three years previous to the passage of the act. It now remains for the veterinarians to see that this law is enforced, and thereby take the first step to raise the educational standard of the veterinary student and practitioner. So long as tyros and horse jockeys are allowed to practice at random, so long will the legitimate practitioner be unable to attain the standing among scientific men which is his due. Let veterinarians, now that the law aids them, prosecute the quacks and the pretenders, and it will not be long before the people at large will approvingly recognize the dignity of their noble profession.

Mildew on Grapevines.—As soon as grayish spots appear on the under surfaces of the grape leaves, the vines are attacked by mildew. After a few days, the portions of the leaf thus attacked will die, and the dead portion will break away, leaving a ragged hole in the leaf; sometimes the whole leaf will be destroyed. Flowers of sulphur, dusted upon the leaves with a bellows made for the purpose, is the general remedy. This should be applied on a still, hot day, and the bellows should be so worked as to fill the air with sulphur dust, which will settle upon all parts of the vine. Sulphur, in combination with lime, sulphide of calcium, has been successfully used in this country for the mildew upon the rose, and has been recently offered in France as *Liquide grison*, and *Eau grison*. The liquid is prepared by boiling three pounds each, of flowers of sulphur and lime, with six gallons of water. The boiling should be done in an old iron kettle; when the liquid is reduced to two gallons, allow the mixture to settle; then pour off the clear liquid and bottle it for use. In applying it, use one part of this solution, with one hundred parts of water. Spray the leaves with a syringe, or some kind of garden engine. We would remind those, whose vines are attacked by mildew, of a new treatment recently discovered in France, which we noticed in March last. Fifty pounds each, of lime and sulphate of copper, or blue vitriol, are mixed in a cask with one hundred gallons of water. When the vitriol is dissolved, sprinkle the liquid upon the vines, using a brush.

Grass for a Name.—"A Subscriber," Fauquier Co., Va., sends us a grass, several bunches of which have appeared in his meadow. From its rapid growth and apparently coarse character, he naturally supposes it to be of little value, and asks if he shall dig it up, and endeavor to get rid of it. The plant in question is the "Oat-grass," also called "Tall Meadow Oat-grass," and "Tall Oat-grass." It was at one time called by the absurd name of "Grass of the Andes," notwithstanding that it is a native of Europe. Its botanical name is *Arrhenatherum avenaceum*. It is closely related to the oat, and by Linnæus was originally named *Avena elatior*. On fairly rich land it grows five and six feet high. Its natural tendency is to form clumps, or tussocks, which may be obviated by sowing at least two bushels of seed to the acre. As to its value, it is by some farmers regarded as superior to timothy, whether for hay or pasture. It forms a remarkably heavy aftermath. The late Rev. O. W. Howard, in his treatise on "Grasses and Forage Plants at the South," especially commends the Oat-grass as valuable for winter pasturage. He says: "The rowen or aftermath, should remain until after Christmas; then the stock may be turned on it in dry weather and remain during January and February. If it be not designed to make hay, they may remain upon it until other grasses spring. The amount of green food yielded by this grass during winter is greater than that of any other grass." The general testimony is in favor of this grass as especially valuable in the Southern States.

Treating Large Flocks of Sheep for Scab.

In previous issues, we have illustrated vats and their accessories for dipping sheep. This method of dipping, with flocks of some thousands, is quite too slow, and with such large flocks the swimming method is adopted. The vats, yards and pens employed in Millard Co., Utah, for large flocks, are described by Mr. Stephen Powers. A general view of the pens, etc., is given in figure 1, and a ground plan of the vat, pens, etc., is shown in figure 2. *A*, fig. 2, is the chute from a corral; *B* is a sloping board over which the sheep, in attempting to pass to decoy pen *C*, slide into tank *D*, which is generally twenty feet long, four feet six inches deep, and sixteen feet at the bottom, thus giving it a slope at the outlet of four feet, two feet wide at top and eight inches at bottom, thus compelling the sheep to swim in the middle of the tank. *E* is a board fastened in tank with cleats on it, to enable the sheep to obtain a foothold in walking out. *F F* are draining pens (water tight), and sloping to sluice box in center which carries the dip again into tank *D*. *C* is a decoy pen containing a few sheep to entice the sheep in the chute. *H* is a pen into which to dodge any sheep not needing to be dipped. *L* is the dodge gate. This tank can be made of one inch pine boards, and lined with galvanized iron; No. 20 will do, which makes it water-tight, and gives no footing to the sheep. *K K* are pieces of 2 x 6, twelve feet long, bolted lengthways of the tank and four feet from each end, and six inches from top of tank, leaving a twelve-inch space through which the sheep must put their heads, preventing those in the rear from riding those in front and thereby drowning them, at the same time keeping their backs under the dip. While in the tank, the scab can be broken up, teeth looked at, and as they pass out, branded. The draining pens, *F F*, are regulated by a gate at *E*, and can be filled alternately, thus allowing one pen to drain while the other is being filled. An opening is made whereby the sheep escape from the draining floors, and can then be combed.

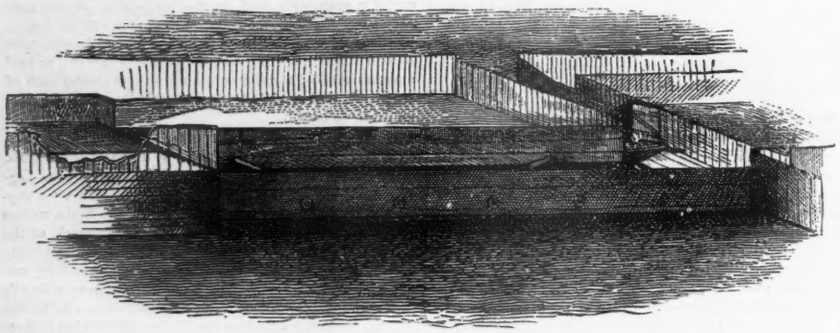


Fig. 1.—SWIMMING VAT AND PENS.

Many dispense with the sloping board *B*, and use pen *H*, particularly when the ewes are heavy with lamb, the sheep are dropped carefully into the tank, rump first. A boy is often placed behind the sloping board *B*, with a short stick to push the sheep in as they pass over it. A man, or two, stands at the tank to regulate the passage of the sheep, examine teeth, break scab, brand, etc.; 2,000 is a usual day's work; and that number, which seems large, can easily be passed through in ten hours.

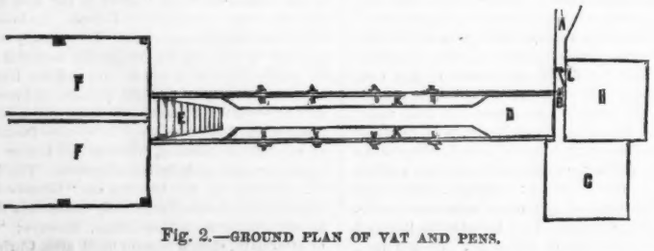


Fig. 2.—GROUND PLAN OF VAT AND PENS.

Two 100-gallon boilers and two 400 gallon storevats (not shown in the plan) are required for a flock of 2,000 to 4,000 sheep, when tobacco is used. Where the storage capacity is limited, it is well to prepare beforehand a very strong infusion of tobacco, say one pound to the gallon, and dilute it when needed. The tobacco should be steeped in two waters to extract all the strength. In localities where convenient, and where the expense would be too great for one, several frequently join and build a corral and dipping tank, each paying his proportion of the general expense, according to the number of his sheep dipped. By a careful selection of ground, expenses may be greatly reduced. The dipping station should be near a stream if possible. A V trough carries the water to the boiler, which, when hot, is allowed to run into the steeping tank through a hole in the bottom; when steeped, another plug is drawn, and the now prepared dip runs into the tank.

The vat should be at least sixteen feet long, to keep the sheep in the water a minute or so, and deep enough at all times to prevent them from touching bottom; it should be tongued, grooved and pitched, and should be closely covered up, when not in use, to prevent the sun from warping and splitting the boards. If an inch gauge is placed on the inside, and the capacity of the vat ascertained in gallons, it may be known at any time, at a glance, how many gallons the vat contains.

The draining yards should hold 100 sheep apiece, and be at least two in number, to allow the dipped sheep to drip thoroughly before they are turned out. Corrugated iron, laid down in long sheets, or sheet iron roofing, is the best material for the flooring of these yards. It should be laid down on sleepers close together, and the joints or seams protected from the trampling of the sheep by narrow strips of wood nailed alongside.

The Champion Silo of England.

H. F. MOORE, SOMERSET, ENGLAND.

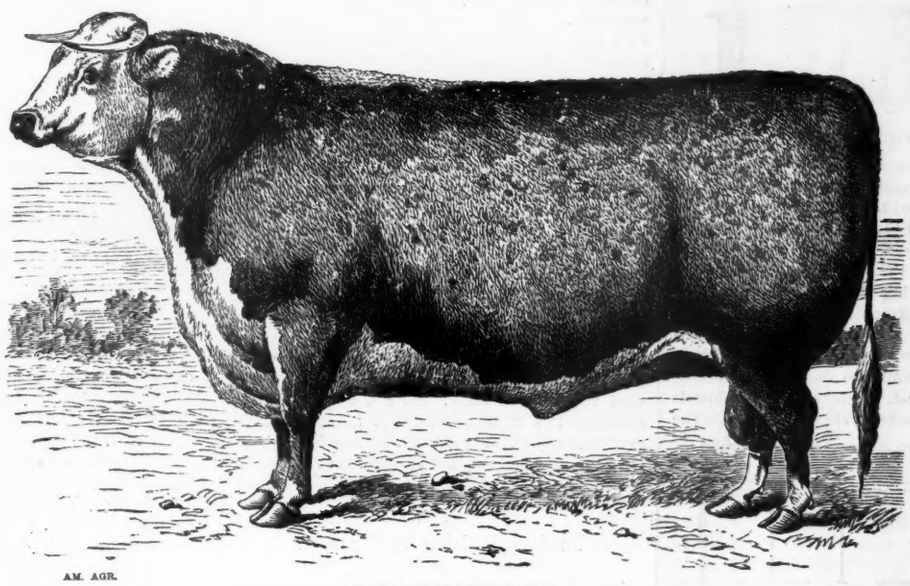
The Royal Agricultural Society of England was last year commissioned by its President, Sir Massey Lopes, to offer a prize of one hundred guineas (five hundred and ten dollars and fifty cents) for "the best silo in England and Wales in actual work during the winter of 1885–86." In the competition for this prize there were no less than thirty-seven silos, the result being that the prize was awarded to Mr. John Morris, of Tutham Court, Madley, Herefordshire. In their report to the Royal Agricultural Society, the judges give a description of this silo. It is an entirely new structure, thirty-six feet in length, fifteen feet in width, and thirteen feet in hight, with a super silo or shed above, seven feet in hight to the eaves of the roof. The silo may be described as an underground silo, walled in with stone, and excavated ten feet deep, the surrounding ground being banked up three feet to the top. On the coping are built ten brick piers, seven feet in hight, and upon these the roof is supported. The silo, itself, is divided by two cross walls into three compartments, each fifteen by twelve feet. In these walls are planked openings, affording ready communication from one compartment to the other. There is a third opening in the front wall; in the middle compartment, which is approached from the farm-yard by a walled, sloping road, wide enough for a cart to pass along. The cost of building this silo amounted to one hundred and two pounds, eighteen shillings and eightpence (five hundred and fourteen dollars and fifty-six cents), the cost being moderate, and amounting to only fourteen shillings (three dollars and fifty cents) per fifty cubic feet of capacity. The silo was filled in two weeks. The crop consisted of oats and grass, cut in full bloom, and unchaffed. The pressure adopted was that of men and horses first treading down the contents, and then continued pressure by leverage. The ensilage was found good and sweet, and was well utilized. There were about one hundred and fifty tons of ensilage made in this silo, and the whole has proved a success in every way.

THE CHAMPION SILO OF ENGLAND.

Drawn and Engraved for the American Agriculturist.

Hereford Cattle.

The Herefords are an ancient British breed, which has been long valued in its native country for its excellent beef qualities, fattening easily, producing beef of a superior quality, with small offal; being well developed at the bust parts, loins, ribs, flanks, and thighs particularly; for the robust constitution of the breed, and its value for crossing with other kinds of cattle. It has only become justly valued in this country within the last thirty years, and its great growth in public favor is of still later date. Gradually it has forced its way up in the esteem of breeders and feeders against the beautiful and popular Devon, which, in form of carcass it much resembles, though very much heavier, and against the universal favor in which the "lordly and aristocratic" Shorthorn was held. The long lists of the winnings of the Herefords in the prize rings, and especially in the fat cattle rings, in competition with all other breeds, have not only offered practical demonstration of the value of the breed, but added greatly to the enthusiasm of their breeders. Feeding experiments carefully conducted, place the Herefords high in the scale of economical feeders, as high, indeed, as any of the prominent beef breeds. Individual characteristics of the animals subjected to these nice tests, having more influence in the determination then relative value in converting food into flesh than characteristics of breeds and families. The steady growth of the breed in this country, places it now as ranking next to the Shorthorns in number among the beef breeds, and the increase, so considerable of late, is largely of home breeding. There have, indeed, been many importations, but so hardy and vigorous is the breed, that the regular increase of a herd may be calculated upon with great certainty, and it is largely on this account that there are now so many of this fine breed in the country. Our illustration exhibits a typical animal of this breed. The white face, white belly, and streak on the back, are characteristic. The short legs, low brisket, deep carcass, long body, broad, level back, full crop, are well shown in the engraving. Besides the characteristics obvious in the portrait, great thickness through the heart, and the length and thickness of the hams, and depth of flanks mark an animal of first-class beef points. As handlers, the Herefords are unsurpassed. Their hides are, with notable uniformity, mellow and unctious, loose and pliable, and underlaid with that soft cushion of fat which a feeder delights to perceive.



TYPICAL HEREFORD BULL.

DESTRUCTION OF VERMIN.—In the warm weather insect pests increase with great rapidity. Some of the worst of these reproduce themselves in a few days, and as their progeny is very numerous, their numbers soon become overwhelming. It is, therefore, necessary that means of repression should be taken immediately. The young animals suffer chiefly, and poultry most. Fowls, indeed, not only suffer themselves, but soon infect barns and stables with fleas and lice, and it has been known that horses have died from the intolerable persecutions of vermin brought into their stables by fowls. Owls, swallows, rats and mice also bring vermin into barns and stables. Oil is fatal to every insect which it touches, and sulphur is very offensive to them. A mixture of four ounces of lard and one ounce of sulphur, well rubbed together, and with the addition of one ounce of kerosene oil and one dram of creosote, will be found an excellent remedy against all sorts of insect vermin, while the liberal use of kerosene oil on poultry roosts will free the fowls from their tormentors.

Dogs—Their Rights and Liabilities.

GEORGE PUTNAM SMITH.

The sportsman's dog is now considered in law as his property; to be acquired by the same means as other personal property; to be held by him, subject to the restriction affecting the ownership of all property, that it should not be used as, or permitted to be a cause of, injury to another; and, if properly acquired and used, to be entitled to the protection of the law. Dogs will bark; but they must do so with moderation and discretion. If a dog frequents a stranger's premises, and there makes night hideous by barking and howling, he may be killed as a nuisance. Dogs will bite, and they may do so, not only with impunity, but with commendation, in defence of their master or his property; but if they indulge their propensity on other occasions, the owner's liability will depend upon why the dog did the injury; who or what was injured, and how, when and where it was done.

LIABILITIES OF DOG OWNERS.

A savage dog is a possession which demands from its owner extraordinary care. Knowing, or being in law presumed to know, the dangerous nature of the property he has in charge, the owner will be held liable for all damage, direct or indirect, which may be caused by such property. It has, however, been held that the fact that a dog is known to be savage, and that it has attacked animals, is not enough to make its owner liable to a man who is bitten by it, unless he can show that such owner had knowledge of the dog's propensity to bite men. A ferocious dog, accustomed to bite mankind, is a nuisance; and, if found at large, may be killed by any one. But he must not be killed on his owner's premises, unless about to attack some one. A dog not naturally savage will sometimes bite, and in such cases his owner's liability will depend on the facts of the case. If the dog, "to gain some private ends," has chosen to bite an unoffending man or beast, his owner must pay for it; but if a person will not "let a sleeping dog lie," or otherwise teases or provokes the animal and is bitten therefor, the dog's owner may invoke the doctrine of contributory negligence. A well-trained and good-natured dog may cause injury to persons or property; should he do so under direction of his master, the latter will of course be responsible.

TRESPASSING DOGS.

If a dog, while trespassing, does an injury, its owner is liable, although he had no previous knowledge of its mischievous propensity; and if, while ranging out of sight or control of its master, it attacks any one or anything, or is damaging property, it may be wounded or even killed. The right to wound or kill it will depend on the facts of each case, and also on the dog's reputation. If a dog commits a trespass he can be punished therefor; but, as in the case of trespasses by human beings, the land-owner is bound "to make the punishment fit the crime;" and he cannot shoot the animal, nor scatter poisoned meat about his grounds, nor provide an array of traps or spikes or pitfalls to wound or kill the trespassing dog. And the fact that he may have posted up notice of the danger is not sufficient, for the most intelligent dog can hardly be expected to understand the notice or detect the harmful qualities of poisoned meat. If a trespassing dog is injured without the participation of the land-owner, the latter is not responsible. But if the land-owner entice the dog onto his land he will be liable for consequent injuries to him. Thus, where a man set traps on his land baited with strong-scented meats to attract dogs, and caused pieces of meat to be trailed along the ground leading to the traps, he was held liable for injury to a dog who was caught in one of the traps. The general rule is that the owner of a domestic animal is not liable for injury done by it unless he had notice of its mischievous propensity, or the injury occurred through some negligence on his part, but this rule has, in some States, been changed by statute, and the owner is liable, even although he was ignorant of the animal's disposition. By statute, also, the right to keep a dog one's self, and to kill one belonging to another, has been regulated.

DOGS ON RAILROAD TRAINS.

If the dog is injured while being carried on a train the company will have to pay for it. Whether railroads are common carriers of animals generally has been both affirmed and denied by courts, and even when they have been declared such they are held to be not liable for injuries resulting from the inherent qualities of the animal. But it may be questioned whether a setter, pointer, or hound, going with or to his master, placed in the baggage car of a passenger train, is not a special baggage accepted by the railroad company as an inducement for his master to take passage on their cars, or as a source of income to the company or its servants. The railroad company having received the dog on a passenger train it becomes, beyond a doubt, entitled to suitable accommodations and to full protection, and this is true whether or not a charge is made for carrying the dog.

LICENSED DOGS.

Statutes and ordinances to regulate and license the keeping of dogs have been adjudged valid, and the license fee properly exacted as an exercise of the police power of the State. A statute giving any person a right to kill an unlicensed dog "whenever and wherever found" is constitutional, and will protect an officer who, duly provided with a war-

rant, enters on the owner's premises and kills a dog. But under the same statute it was afterwards held that if the dog was within its owner's dwelling house a constable had no right under the warrant to remove the dog thence without its owner's consent. Nor may a private person enter at all upon the premises of another in order to kill the dog. And under a statute authorizing the killing of unlicensed dogs "going at large," an officer is not justified in entering on its owner's premises and killing the dog. And a dog is not "running at large" if he is hunting with his master, although the latter may be at a distance, and out of his sight.

Cheap and Convenient Cow Stables.

A stable for a dairy should be convenient for handling the cows, comfortable for the animals, safe against accident, and especially so arranged that in case of a fire the cows could be turned out very quickly, and be saved from destruction. A

Fig. 1.—VIEW OF STABLE.

stable having all these advantages may be put up for about one dollar and a half per running foot, which is equal to about ten dollars per cow, allowing the stalls to be six to seven feet wide. In figure 1 is shown the front and side view of a stable for five cows; at figure 2 the ground plan, and in figure 3 a section showing the arrangement of the stalls. The hight in front is ten feet, and at the rear eight feet. The roof slopes two feet, which gives sufficient fall to shed rain. The width is fourteen feet. The entrance door to the feeding passage is at the end. Here also, a window is placed, and other windows are at the rear. The

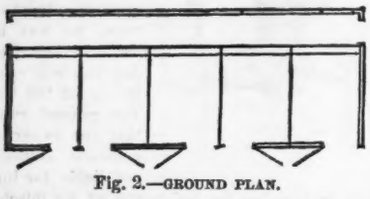


Fig. 2.—GROUND PLAN.

doors are double, so that the upper half can be turned back and hooked, for the purpose of ventilation when it is required. The doors are in pairs, opening outward, and are so arranged that each two doors can be thrown open without the person moving a step. This permits the very rapid opening of all the doors.

The stalls are seven feet wide and nine feet long, thus being amply large for any cow when loose, and also large enough for two, not above medium size, when they are fastened by chain ties to the sides of the stalls. A feed trough runs the whole width of each stall, and has a sloping guide for putting in the feed from the passageway. The feeding passage would naturally begin at the barn floor, where

Fig. 3.—SECTION OF STABLE.

the feed is prepared, and the feed may be taken in in a large wheelbarrow along the passageway. For a large dairy, the stables may form three sides of a court, of which the barn should form the center of the north side, thus forming a yard open to the south, and surrounded by the stables. The front of the yard may be closed in with a tight board, or a picket fence, and would then make an enclosure in which any cow, which might possibly get out of the stable at night, would be safely confined.

Stacking Straw.

While oats, or wheat straw, is deficient in the albuminoids, hence not a good feed for growing animals, and always a wasteful feed if fed alone, if fed with oil-meal the ration will give profitable results, and the carbo-hydrates of the straw are put to good use in keeping up the animal-heat in cold weather. Properly fed, straw has sufficient feeding value to pay thrice for the cost of saving it; yet it is safe to say that one-half the straw produced in this country is wasted outright. Even the manure formed from it is lost.

Straw may be so stacked that it will keep in good condition until it is fed out during the winter. It is the common opinion that the straw stack furnishes the hardest positions about the thresher; hence, the men usually take the other positions, leaving the straw stack to be mismanaged by the boys. If you wish the straw properly stacked, you must see, first of all, that capable men are put upon the stack, and you must insist upon their doing their work well. A very common fault is to start the stack too wide. It will always spread of itself, and becomes so wide that it must be drawn in abruptly, and the water sinks into it. Another fault is, not to keep the center highest and trampled solid. Let one man be delegated to lay the outside, and each of the other men to stack and trample down a certain section of the interior, and not to stand in a hole and throw the straw idly about him. It requires close supervision and good work to make a straw stack. And when it is made, do not allow the top to be blown off for lack of a few "keepers," or the cattle to waste half of it—being allowed to run to the stack. Put a fence close around the stack, and build racks or mangers close to the fence. Then, during the winter, cut down the stack with a knife, and fill the mangers. Put the chaff in a pen and roof it, or else have it evenly distributed through the stack. Do not allow it to accumulate in a mass around and under the straw carriers, to spoil. The above is written for the benefit of those who have not mow room or barracks for the straw.

Poultry Raising in Summer.

Many farmers suppose that it is not profitable to hatch chicks in summer, or retain hens that are moulting, yet while the profits of raising poultry in summer may not be as great as during the winter months, when the cost of production is compared with the prices obtained for every month in the year, it will be noticed that a fair profit can be secured at all seasons.

The profits from a hen cannot be credited only for the time she is laying, or hatching a brood. If she is only a year old, a certain proportion of the eggs laid by her must be charged to her account for food, shelter and care, while she will also be largely indebted for her support from the time she was hatched until she arrived at a profitable age. Considering, therefore, that she is more expensive the first year than she is the second or third, it is plain that she will lessen the expense, proportionately, for three years. After that time, she will begin to decline, and her place may be supplied by a pullet.

It does not pay to raise a pullet and then dispose of her as soon as she begins to moult, as all hens must naturally shed their feathers, which usually requires a period of three months. After she has arrayed herself in her new plumage, she takes a new lease of life and soon begins to lay. She is then more valuable than when she was a pullet, as she is fully matured, will lay larger eggs, while the percentage of chicks from eggs laid by her will be larger than from pullets' eggs. Sending the hens to market as soon as they begin to moult not only forces an over-supply on the market at a time when prices are low, but deprives the poultry raiser of his best layers. The hatching of chicks during the summer months can be made profitable even at low prices, as the food for each pound of flesh on the chicks will only cost five cents, and, allowing two cents for the eggs from which the chick is hatched (two eggs per chick), the total cost for chicks, weighing two pounds, need not be over fifteen cents each. At only twelve and one-half cents per pound quite a large profit would be secured in proportion to the expense for food and capital invested. Most persons object to summer hatching owing to the annoyance of lice, but a good manager should not allow the vermin to appear. As but little warmth for the chicks is required in summer, with green food plentiful, and the prospects more favorable than in winter, it is an excellent time for hatching chickens for profit.

Hand-Barrow.

Something for which use will be found almost every day is the hand-barrow, shown in the illustration. It is made of stout lumber, nailed together, with two iron rods passing through the sides and

CONVENIENT HAND BARROW.

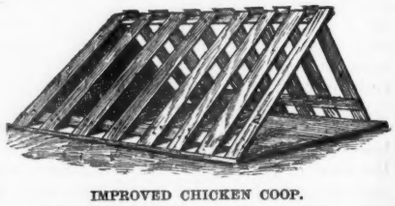
under the bottom. Nuts on the ends of these rods hold the sides more firmly together. The barrow may be made yet stronger by putting such rods through the ends. It is convenient for carrying loads too heavy for one person, and is easily made.

Feeding Young Chickens.

A young chicken has a small stomach, and digests its food very quickly. It therefore requires food "a little and often." A chicken three or four days old will take only fifteen grains of food at a meal, and one ounce of corn or oatmeal will feed thirty of the little creatures, which are quite as apt to gorge themselves as any other animal, and should therefore be fed with caution. The food should be given every two hours. It is a good plan to have a feeding board for the chickens which the hen cannot reach, and feed her with corn, as when fed with the hen the food cannot be apportioned for the chicks. The frequent diarrhea which destroys so many young chickens is due to over-feeding, and it is therefore wise to have some arrangement by which the food can be regulated. Coarse oatmeal, crushed wheat and cracked corn, with some chopped meat occasionally, make excellent feeding for chickens.

Chicken Coop.

The illustration shows an improved chicken coop, the sides of which are made of lath, and two laths on each side (1, 2, 3 and 4) are left one inch longer than the others, the lengthened ends fitting into mortises, cut at the proper angle, in the board



IMPROVED CHICKEN COOP.

used for the bottom. This holds the sides firmly in place. The back consists of an inch board cut the proper shape and held in place by two shingle nails driven through the back lath on each side and into it. The nails are not driven quite down, hence are easily removed. The advantage of this construction is that the coop may be taken apart in a moment, and stored away when not in use. The ordinary coop is very frequently left in the weather to rot; or, if stored away, occupies much room.

Neatness About the House.

Every farmer, and in fact, every person owning a yard, ought to take pride in keeping it neat and clean. Neat, well-kept yards attract the passer-by, and often add a money value to the place. We have an instance of this kind in mind, now. A man came into a certain neighborhood, recently, to buy a farm. He found two that were for sale. One was as good as the other, as regards location, soil, buildings, etc., but one had a neat yard about the house, and the other had a slovenly one, and though he could have bought the one with the slovenly yard for less money than he had to give for the other, he chose the one that cost most, simply because it looked best.

Have a well-made fence about the yard, and keep it in repair. Have a strong gate, and never let it get off its hinges. Keep the shrubs and trees trimmed up well, and never let litter of any sort accumulate. Have a big box, or hogshead, in the back yard, into which cans, old boots, shoes, and the thousand and one things which accumulate about the house can be thrown from time to time. When the box or hogshead is full, burn or bury the rubbish. This refers not to the front yard only; let neatness prevail all about the place. It gives an air of thrift and prosperity, and always impresses a beholder favorably. It pays in more ways than one to have neat surroundings.

Dusting Box for Chickens.

During the hot weather of summer, half-grown chickens often droop and die from no obvious cause. On investigation the puny or dead ones will be found covered with lice. In order to prevent this trouble, good dusting places must be provided. F. E. Day, of Green Co., Ohio, sends the *American Agriculturist* a description and drawings of a dusting box on an excellent plan. He writes: "Make a box two and a half feet wide, and three and a half feet long and one foot deep. Set this in the ground to half its depth and bank up around it to three inches from the top. Then drive or set a two by four inch post at each corner, the two

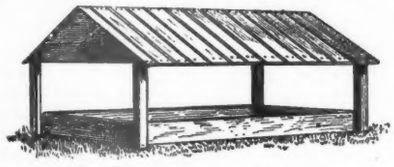


Fig. 1.—DUSTING BOX COVERED.

front ones three inches from the corners, and the rear ones five inches from the corners. The posts should stand eighteen inches deep and the front ones eight inches above the box, and the rear ones ten. These posts support a cover of half-inch lumber and so large that it will extend several inches beyond the box all around. Make wooden hinges for the rear, or north side. Two simple boards are attached to the posts by wooden pins, so that the cover may be raised to let the sunshine in upon the box. The box with the cover down is shown in figure 1, and in figure 2 it is seen raised.

Fig. 2.—DUSTING BOX OPEN.

In winter the whole cover may be removed and housed, if desired. It is not absolutely necessary to have the cover swing up, but I think the chicks prefer to dust themselves in the sun. Always put the cover down when it looks like rain. The best dusting material is road dust. If you have not this, coal ashes will do. I have also used some lime. Sprinkle in a little sulphur once in a while. Let the biddy and her chicks all go in together. I would not fill the box more than six or eight inches deep with dust."

Barn, Stable and Carriage House.

A very convenient barn, adapted to the use of village or suburban residents, or small farmers, is described for the *American Agriculturist* by Mr. John Harrrison, Jr., of Ontario, Canada, from whose drawings we have made the accompanying view, figure 1, and plan, figure 2. The barn is forty by thirty feet on the ground, with fourteen-foot posts, and with a shingle roof having any desired pitch (say one-third or one-half, according to the snow it is liable to have to support, or according to the character of the covering). As will be seen by the plan, it has three stalls, *S*, for horses—a convenient harness room, *H;* three cow stalls, *C;* a feeding passage between the two rows of stalls, so that horses and cows can be fed from the front. There are three bins for grain, *G;* a commodious box-stall, *B*, for use as a lying-in stall for mares or cows, or for horses at any time. Between the feeding passage and the harness room is a small tool-room, *T*, for all sorts of hand tools. It is close to an outside door, and conveniently situated. The carriage or wagon room is twenty feet square, with stairs to the loft next the box-stall. The loft is large enough to hold several tons of loose hay and straw in bundles. The large door, *D*, to the carriage floor, as well as all inside and outside doors, *d*, hang upon rollers, and so when open are never in the way. The whole building is well-lighted by large horizontal windows, *w*, and is convenient and compact as it can well be made. Sheathed on the inside, and sided with matched boards, or clapboards, and painted, it forms a neat and tasteful structure, well adapted to its uses, and very handy for those who care for the stock.

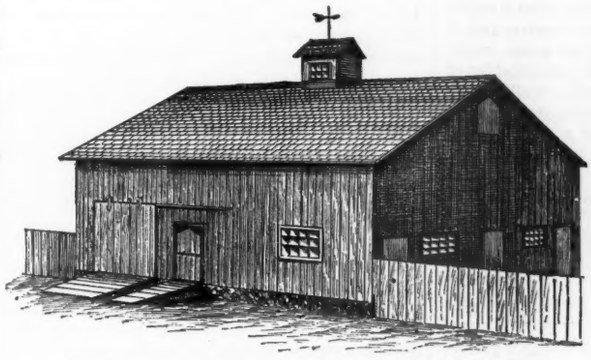


Fig. 1.—VIEW OF BARN, STABLE AND CARRIAGE HOUSE.

FEED THE LAMBS.—Lambs may be fed directly, or indirectly through the udders of their dams. The latter way is preferable, because it avoids the danger of over-feeding the young things, whose stomachs are not yet accustomed to solid food. It is quite safe, however, to have a nice, sweet bit of grass for the lambs, adjoining the pasture or the lot where sheep are confined at night, and give entrance to it by narrow creeps through which they will squeeze themselves but the sheep cannot follow. A "lamb meal," highly thought of by English shepherds and exceedingly nutritious and quite digestible, is made as follows: 100 pounds of peas, 100 pounds of oats, 50 pounds of corn, 50 pounds of rice meal, and 100 pounds of bran are ground together as finely as possible. To this are added 20 pounds of brown sugar, 4 pounds of salt, and 2 pounds of ground ginger. The whole is evenly mixed, and a few ounces are put into a small trough where the lambs can get at it. A pound is enough for twenty lambs. A delicate, weak ewe will be greatly benefited by having a few ounces daily of the meal, as an appetizing tonic.

Sorghum.

Available Sugar. Meaning and Importance.

DR. PETER COLLIER.

In the discussion of the production of sugar from either sugar-cane, beets, or sorghum, the subject of available sugar is constantly under consideration. The amount of sugar to be obtained from the juices of the above plants depends to a great degree upon the amount present in the juice, but not entirely upon this. Besides sugar, there is always present in the juices of sugar-producing plants a certain varying quantity of other substances, both vegetable and mineral.

In the juices of sugar-cane, sorghum, and maize, there is always present more or less uncrystallizable sugar besides certain mineral salts. In the juice of the sugar-beet there is present no uncrystallizable sugar, but a considerable quantity of mineral salts, chiefly salts of potash. If a certain quantity of pure sugar is dissolved in water, we may, by careful evaporation of the water, obtain practically the whole amount of sugar unchanged; but it is found that the presence of the impurities above mentioned prevents the crystallization of a portion of the sugar which remains dissolved and constitutes, with these impurities, the molasses. It has been shown that while some impurities tend to increase the amount of molasses found, though in unequal degrees, other substances appear to have no effect whatever, while a third class of impurities actually tend to increase the crystallization of the sugar. In practice, the sugar boiler ignores everything other than the glucose, or uncrystallizable sugar, and estimates that the glucose present will retain in the molasses an amount of sugar equal to its own weight. If a sample of molasses contains 45 per cent. of sugar, 25 per cent. of glucose, and 30 per cent. of water and other constituents it would, upon reboiling, be expected to yield 20 per cent. of its weight in sugar.

A simple method for the determination of the available sugar has been devised which appears nearly to conform in its theoretical results with the results of actual practice. By this method the avail-

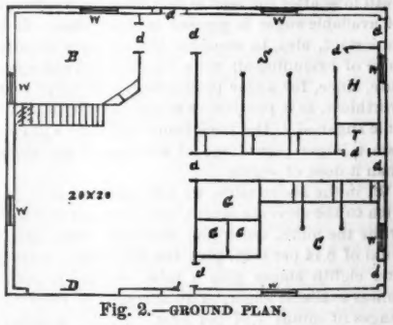


Fig. 2.—GROUND PLAN.

able sugar is estimated as the excess of crystallizable sugar over the sum of the other solids present in a sample of juice or syrup. For example, in the case of a sample of juice, containing 15.30 per cent. of sugar, 0.87 per cent. of glucose, and 2.95 per cent. of other substances, we have 15.30, less 3.82, equals 11.48, the percentage of sugar which could be obtained. It is probably true that this method gives somewhat lower results than can be secured in practice, but it is at least a safe side upon which to err. From the above considerations it will appear clearly that for the production of sugar it should be the aim of the grower of the cane and the manufacturer to obtain a crop which should yield a juice rich in sugar and at the same time as low in its contents of other constituents as possible. In the production of syrup only it is of

course necessary to work up the crop at the time when the maximum amount of sugar and glucose, taken together, is present in the juice, since both of these enter into the syrup. It, however, has been established by thousands of analyses of many varieties of sorghum that the best time for the most profitable production of sugar is also the time when the largest quantity of syrup may be produced, and this is after the complete maturity of the seed; so that, whether used for sugar or syrup, there is no trouble in securing also the maximum crop of ripe seed. This point is so important in connection with this industry, that it cannot be too often impressed upon the manufacturer. It has been, year after year, established by thousands of experiments, and no well authenticated fact has been presented in opposition to it. If we take the average results of a large number of analyses of several varieties of sorghum, the above facts clearly appear.

ANALYSES OF JUICES OF THIRTY-FIVE VARIETIES OF SORGHUM IN 1881.

Stage of Ripeness.	*Number of Analyses.*	*Per Cent. Juice.*	*Per Cent. Sugar.*	*Per Cent. Other Solids.*	*Per Cent. Available Sugar.*
1 Not headed out...	16	65 30	.89	4.71	— 3.82
2	38	67.13	1.20	5.65	— 4.45
3 Fully headed out.	40	69.48	1.84	5.76	— 3.92
4	52	68.02	2.02	6.31	— 4.29
5 In full blossom ..	46	68.18	2.78	6.59	— 3.81
6	51	68.07	3.60	6 47	— 2.87
7 Seed in milk.....	42	67.21	4.71	6.69	— 1.98
8	42	67.81	6.08	6.72	— .64
9 Seed in dough...	45	66.76	7.47	6.33	+ 1.14
10	60	67.91	8.76	5.90	+ 2.86
11 Seed hard and ripe	53	65.84	10.00	5.86	+ 4.14
12	44	62.44	12.01	5.67	+ 6.34
13	40	62.50	13.06	5.45	+ 7.61
14	37	58.92	13.98	5.11	+ 8.87
15	37	63.54	14.34	5.10	+ 9 24
16	40	60.25	15.99	4.85	+11.14
17	37	58.85	15.94	4.92	+11.02
18	45	56.51	16.61	4.84	+11.77
19	44	57.22	15.23	5.40	+ 9.83
20	370	58.45	11.89	5.56	+ 6.33

The above table represents the analyses of 1179 juices. These results have been confirmed by many more analyses of the same and other varieties in different years, and clearly show that for the purpose of sugar production it is folly even to hope for success, unless the crop is allowed to fully ripen its seed before it is worked up for sugar; and it is as clearly proven that it is not until long after the seed is ripe that the maximum of available sugar is present in the juices. It is important, also, to consider the extreme importance of excluding all cane which is not quite mature, since, for sugar production, it is worse than worthless, as it possesses a minus quantity of available sugar—*i. e.*, the juice from such cane will contain a larger percentage of substances not sugar than it does of sugar.

If, in the above table, we take an average of the fifth to the eleventh stages, inclusive, we find that, while the ninth, tenth and eleventh stages give a total of 8.14 per cent. plus, the fifth, sixth, seventh and eighth stages give a total of 17.51 per cent. minus available sugar, or an average for the seven stages of minus 1.17 per cent. By this is meant, that the average per cent. of sugar was 1.17 per cent. less than the sum of the percentages of the glucose and other solids of the juice. The above sufficiently explains the failure to make sugar at the Department of Agriculture in 1881, and the failure was clearly predicted to Dr. Loring months before the attempt was made to make sugar, for he was told that owing to the late planting of the crop of sorghum it was simply impossible for it to mature and hence impossible that it should be found to contain any available sugar, and his determination to withhold this fact from the people led them to suppose that the unfortunate results were not only unexpected but unavoidable.

The following analyses represent the average results obtained in 1884 by the Department of Agriculture in the examination of seventy-two juices from Louisiana sugar-cane, and fifty-eight juices of several varieties of sorghum.

	Sugar-Canes.	*Sorghums.*
Sugar.....	13.05 per cent.	14.76 per cent.
Glucose.....	.67 " "	1.37 " "
Other Solids...	2.82 " "	3.65 " "

The exponent or co-efficient of purity of the sugar-cane juices is 78.9, and of the sorghum juices 75.0. By this method of estimation the available sugar in the sugar-cane juices would be 10.3 per cent., and in the sorghum juices 11.07 per cent. If, however, we estimate the loss of sugar as equal to the total weight of the solids not sugar present in the juices, we have as available sugar in the sugar-cane juices 9.56 per cent., and in the sorghum juices 9.84 per cent., so that, as appears by either method of estimation we may adopt, the important fact is established, that the sorghums contained a larger amount of available sugar than did the sugar-canes, a result which, however remarkable, was discovered and published by me in 1879, and fully confirmed by my work in subsequent years. In the production of sugar from saccharine juices, it is manifestly desirable to pursue such methods of manufacture as shall result in the loss of as little sugar as is possible, and in the removal as completely as possible of the other constituents of the juice. By the ordinary methods these objects are secured by what is known as the defecation of the juice—generally by means of lime—by which a very large portion of these impurities are removed, and by skimming during the first stages of evaporation.

The following results represent the average of fourteen experiments made by me for the purpose of determining the actual loss sustained during the manufucture of sugar from sorghum juices:

	In Juices.	*In Syrups.*
Sugar.....	1,151 pounds.	1,036 pounds.
Glucose	149 "	108 "
Other Solids.....	224 "	128 "
Available Sugar..	778 "	800 "

It will be seen that during the manufacture there was a loss of 115 pounds, or 10 per cent. of the sugar; of 41 pounds, or 27.52 per cent. of the glucose; and of 96 pounds, or 42.86 per cent. of the other solids; and a gain of 22 pounds, or 2.83 per cent. in the amount of available sugar; this very interesting and satisfactory result being due to the fact, that the loss of glucose and other solids amounted in all to 137 pounds, while the loss of sugar was only 115 pounds. The above experiments were conducted upon a small scale and with inferior appliances, and yet from them it is shown that the actual loss in sugar during all the necessary operations of manufacture need not exceed 10 per cent. of the amount actually contained in the juice, and there is reason to believe that upon a larger scale and with improved apparatus, the necessary loss may be very considerably reduced.

Fall Pigs.

It is doubtful if anything is gained ultimately by having sows farrow twice a year. The suckling of two litters must injuriously reduce the sow, and the pigs are not properly nourished, thus injuring them. But when the spring litters are still-born, or lost shortly after birth, or, in some cases, when sows are too young to be bred to farrow in the spring, it is good policy to breed for fall pigs. But to make them as good as spring pigs they must have good shelter and the equivalent of green food. Swine shelters are more likely to be made too warm than otherwise. The swine lie close together, and their bodies are compact, hence they require rather open shelters. Sheltered swine usually suffer more from foul air than from cold. Good ventilation is the first essential of a swine shelter. This must not be forgotten when constructing shelters for fall pigs, for, because they are small, the shelter is likely to be made warmer than for mature swine, which is saying that it will be altogether too warm. They should have no litter if the shelter will keep them dry and protect them from winds. The equivalent of green food is easily provided, and it is not a more expensive food than grain. Turnips can be grown after a crop of early potatoes or sweet corn has been removed from the land, or even on stubble ground. The small potatoes may be gathered up and boiled. A patch of rye will give green food until covered by the snow and at intervals during the winter. The vegetable scraps may be saved, and thus the pigs be kept thriving through the winter.

Comparative Shipments of Meat.

The shipment of meat from Buenos Ayres amounted to 15,200 tons in 1885, nearly double the amount in 1883. The value was $1,933,000. Buenos Ayres is the capital of the Argentine Republic, and the sanguine inhabitants of that country expect soon to rival the United States in the export of meat. A few comparative statements bearing on this point will be of interest:

	Population.	*Cattle.*	*Sheep.*	*Horses.*
United States,	55,000,000	36,000,000	35,000,000	11,000,000
Arg. Republic,	3,000,000	18,000,000	80,000,000	5,000,000

These figures show that our South American competitor, with one-twentieth of our population, has half as many cattle and horses, and twice as many sheep, as are in the United States.

The Argentine Republic has the disadvantage of not having improved breeds of cattle and sheep, the outside world demanding a finer product than that country can yet furnish. The total export last year was valued at less than $2,000,000, while that of the United States was as follows:

Hog Products,	$64,833,000	Other Meats,	$ 5,710,000
Beef Products,	22,420,000	Dairy Prod.,	14,319,000

This is an increase of more than threefold in fifteen years. The export of live cattle, sheep and hogs, from the United States, last year, was in value, $14,000,000. It will be some time before the Argentine Republic or, indeed, the whole of South America, will reach the present grand dimensions of the United States in the export of meat and live animals. One land proprietor in the Argentine Republic, last year sold 60,000 mares to be slaughtered for their fat, hides and hair. The immigration to the Argentine Republic has been about 600,000 in the last thirteen years. The immigrants are mostly from Italy, Spain and France. Very few come from Great Britain and Germany.

Cutting Timber in August.

Experience has shown us that the best time to cut timber for posts, rails or stakes, is in August. The bark will then come off readily, and the wood becomes harder and endures longer than if cut at any other season. Hickory never makes a good post or stake, as it rots rapidly in the ground or on it, and if cut when the bark adheres, will soon rot, or likely be cut to pieces, before it can rot, by worms. But if cut in August, very few, if any trees, make a more durable rail for off the ground. The bark drops off, and the wood becomes so hard that it "jingles" when struck, while the worms do not attack it. Hickory rails, made from trees cut in August and kept off the ground, will last for fifty years.

White oak makes a durable rail or post, cut at any season, but its durability is increased at least fifty per cent. by cutting in August. "Pin oak" is unfit for posts, or for rails either, on or off the ground, when the tree has died, and is entirely unfit for posts, and almost unfit for ralls if cut when the sap is not flowing; but rails made from a pin oak tree, cut in August, will last at least twenty years off the ground. What is true of pin oak is true of red elm. If cut in August it is as durable as hickory or white oak, as long as it is not set in or on the ground. White elm is fit for firewood only, no matter at what time it is cut, and this is true of wild cherry also. With but few exceptions the gain by cutting in August is sufficient to compensate for cutting at that time. It is not necessary that the rails or posts be split out then. The trees may be felled only, and the further work be put off until cooler weather. But it is better to split the trunks into rails or posts for later use as soon as felled; the wood will then season rapidly, and the highest point of durability is attained.

Chickens in the Garden.

Mr. George Allen, of Venango Co., Pa., sends us his novel plan for making hens profitable on a small piece of ground, and writes us as follows:

My entire lot is 75 by 150 feet, with the hen house in the back corner, as shown in the plan. I use the lower inside rail of a board fence that surrounds the lot on three sides—said rail being about eighteen inches from the ground—to nail one end of the laths to; for the other end of the lath I set a joist at the same hight, four feet from the inside of the fence, and another joist at the surface of the ground, both running parallel to the fence all around. The laths are nailed from the lower fence rail, to the top joist, and up and down, close enough to keep the hens in. This gives a yard four feet wide, and about two hundred and fifty feet long. Inside this yard are dwarf pear trees, currants, blackberries, red and black raspberries, etc., growing up between the slats, and spreading out above as shown in figure 2. Outside of the yard a strip of sod or grass runs entirely around. This enables the hens, by reaching through, to eat all the grass they need, but they cannot scratch it up. For the blackberries and raspberries I place a rack about a foot above the laths, to keep the canes in place and the berries out of their reach.

Before adopting this plan, I had a great deal of trouble in keeping the weeds out from among the blackberries and raspberries, but now I have none, as the fowls keep the ground loose, free from

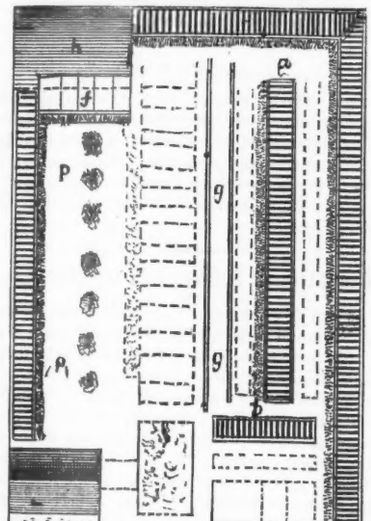


Fig. 1.—GROUND PLAN.

weeds, and the plants well manured, giving me nothing to do but pick the berries, and this they would do for me if I placed them within their reach. In front of the hen house is a cold-frame, *f*, partly filled with sand, and in cold weather, whenever the sun is out, the fowls will be found there basking in the sun and dusting in the sand.

The two yards out in the garden, marked *a* and *b*, are for chickens. These are four feet wide; the sides are of wire netting, fine enough to keep chickens in, and are about eighteen inches high. The tops are lathed over like the others; they are also set with blackberries and raspberries. The chickens are raised and kept in these until large enough to go into the other yard with the hens. When these outside yards are not wanted for raising chickens, they are connected to the others, adding about one hundred and twenty-five feet more in length to the yard room.

The entire space occupied, including the garden, is only about one-eighth of an acre, and it is easy to see by the plan that I have room enough outside the yards to raise grapes, *g*, gooseberries, additional pear trees, *P*, and currants, rhubarb, horse-

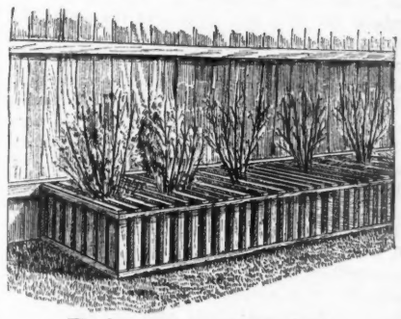


Fig. 2.—VIEW OF COVERED RUN.

raddish, parsley, asparagus, celery, beets, lettuce, onions, cucumbers, squashes, etc., and ample yard room for two or three dozen fowls. They are never let outside the yards, as they have everything they want inside. This leaves the balance of the garden free from their depredations. For turning up fresh ground, and furnishing the fowls with worms, etc., I have a tool made in the form of a hoe, but narrow enough to go in between the laths; by drawing this across, it turns a furrow two or three inches deep, and a few minutes work each day, gives them six or eight feet in length of fresh ground to work in. This, together with an old sledge hammer and cast-iron block for mashing bones and oyster-shells, completes the outfit.

The advantages of this plan can be summed up as follows: No loss of ground, as the garden occupied by the fowls produces more fruit and requires less labor and care than any other part of it; no damage to the rest of the garden from chickens, as they have all the room they require and cannot get out, and a more beautiful and ornamental yard than can be made in any other way.

[With all this we are quite inclined to agree—except the last "advantage"—and freely admit that such a garden would be much more beautiful than one overrun with chickens. One point, however, we have some fears about. The hens would undoubtedly injure the young growth of blackberry and raspberry canes, upon which we depend for our next year's plants and crop of berries. Hence, in May and June they would have to be excluded from these runs, or the young plants especially protected.—ED.]

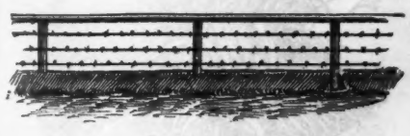
Low Prices for Pure Bred Cattle.

The spring sales of Jersey cattle were such as might indicate either a great overstock of these cattle or lack of faith in their value. Neither of these reasons is true. Of course, certain breeders are overstocked, but the country is not. No doubt if the farmers, who are wide-awake to improve their herds when they can do so economically, had known that Jersey cattle of all ages were going to be sold at as low prices as common stock, they would have been there to buy. Faith in the Jerseys as a family cow increases. They are improving in size, form, quantity of milk, and richness of milk all the time. More care is taken to breed systematically, to study pedigrees, and to breed in lines of great production. The knowledge of the great tests for butter, which have taken place within the last eight years, is having its effect. At first they were not believed by the common farmers; now they not only believe the correctness of many of them, but they have exalted the breed in their estimation.

The enormous prices Jersey cows have brought at previous auction sales in New York, deterred farmers from attending, except from curiosity, and their absence has now tended to still farther lower prices. Then, too, milk was then very cheap, and there was no demand for milch cows. So, all causes seemed to work against high, or even fair prices. This is not likely to occur again to the same degree. Nevertheless, the present is a favorable time for a person to buy a choice herd of Jerseys reasonably.

Cheap and Good Fencing.

The demand of the day is for cheaper and simpler fencing. The days of the old rail fences are numbered; even light board fence is too expensive for general use. The employment of all wire, and especially all barbed wire, has its dangers even after stock have become accustomed to it. The accompanying plan of barbed wire fence, with a strong top-rail, overcomes some of the objections, and makes at the same time a neat, durable fence, greatly lessening the danger to stock. It is not novel, but comes now highly recommended by Mr. N. H. McKellan, of Ontario, who constructs it in this way: He first sets the posts, then plows a furrow two feet from the posts on each side, throwing the furrow slice towards the fence, and forming up the ridge neatly with a spade; then he stretches the three wires, and nails a two by four scantling edgeways. To prevent an unpleasant sagging of the rails, the posts should be eight feet apart, and the



A CHEAP AND GOOD FENCE.

rails sixteen feet long. For common fencing, good straight poles will answer well.

To Find Area of Triangular Plot in Acres.

Take one side as a base and multiply it by one-half the altitude, or greatest width, taken from that base. In the accompanying, figure 1, allow the side, *a b*, to be forty rods, and the altitude, or greatest distance across from base line, viz., *c d*, to be six-

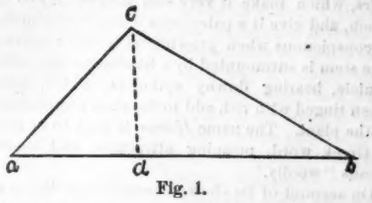


Fig. 1.

teen rods. Then we have, forty multiplied by eight, equals three hundred and twenty rods, or two acres. It will be observed that any figure bounded by straight lines may be divided into triangles, and the measurements of each may be taken separately. The sum of the areas of the triangles will give that of the entire plot. One example will be given in figure 2, as an illustration:

Draw a diagonal and find altitudes of triangles separately; multiply the half sum of the altitudes by the diagonal, and reduce to acres. In the accompanying figure, *a b*, *c d*, we draw the diagonal, *a c*, as a base line; then measure the altitudes, *d e* and *f b*. No measurements are necessary

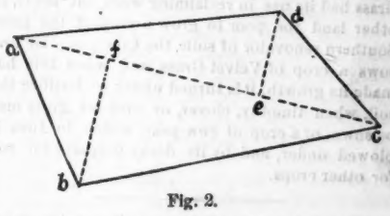


Fig. 2.

except the diagonal, *a c*, which we will represent by fifty rods, and the altitudes, *d e* and *f b*, which measure twelve rods and twenty rods respectively. Following our rule, we have one-half of *d e* and *f b*, to be sixteen rods, multiplied by fifty equals eight hundred rods, or five acres. These rules may be applied to many practical uses.

Velvet Grass (*Holcus lanatus*).

Several common names for one plant are to be regretted; they tax the memory needlessly, and lead to confusion. Besides Velvet Grass, which is descriptive, *Holcus lanatus* is also called Meadow Soft Grass, Woolly Soft Grass, Velvet Mesquite,

VELVET GRASS.

White Timothy, and, in some Eastern localities, Salem Grass. Though originally from Europe, it is very generally naturalized, and is found throughout the country along roadsides and in moist meadows. It grows in tufts, one to two feet high. The foliage is covered with soft, downy hairs, which make it very soft and velvety to the touch, and give it a pale-green color, which makes it conspicuous when growing with other grasses. The stem is surmounted by a handsome, spreading panicle, bearing downy spikelets, which, being often tinged with red, add to the showy appearance of the plant. The name *Holcus* is said to be from a Greek word, meaning attractive, and *lanatus* means "woolly."

On account of its showy character the *Holcus* attracts attention, and it is sent to us more frequently than any other grass for identification. The engraving gives the habit of a tuft or clump of the Velvet Grass, with separate panicles. As to the agricultural value of this grass, it ranks very low in this country and in England, indeed, cattle are said to have an aversion to it, whether in the pasture or made into hay. The most recent English work upon pastures and meadows does not mention it at all. The French, on the other hand, speak favorably of it as making good hay. The seeds weigh only seven pounds to the bushel. A correspondent in one of the Southern States wrote us some time ago (see July, 1879) that the Velvet Grass had its use in reclaiming worn out lands, or other land too poor to grow a crop of the great Southern renovator of soils, the Cow-pea. He first sows a crop of Velvet Grass, and when this has made its growth, it is turned under to fertilize the soil, when timothy, clover, or orchard grass may be sown, or a crop of cow-peas, which in turn is plowed under, and by its decay prepares the soil for other crops.

A NEW BOX TREE.—The supply of box-wood for engraving and other uses has heretofore come from the neighborhood of the Black Sea. This source is being very rapidly exhausted, and a most timely discovery has been made near the Cape of Good Hope, of a new species, *Buxus Macowani*, the wood of which is suitable for engraving, etc. As this Cape box-wood abounds over an area of fifteen square miles, wood-engraving is not likely to soon become a lost art through lack of material.

Pansies.

Everybody admires the Pansy. But not everybody grows them satisfactorily. They do not understand the likes and dislikes of the plant. In the first place, the Pansy likes a not over-rich soil; such an one induces a rank growth of branches, and gives but few flowers. In the second place, it likes to be partially shaded from the hot summer sun. It is not fond of shade, but it prefers to have the sunshine so tempered and toned down that it does not burn and scald as the sunshine of a fierce midsummer day is pretty sure to do when its force is not broken by some intervening object.

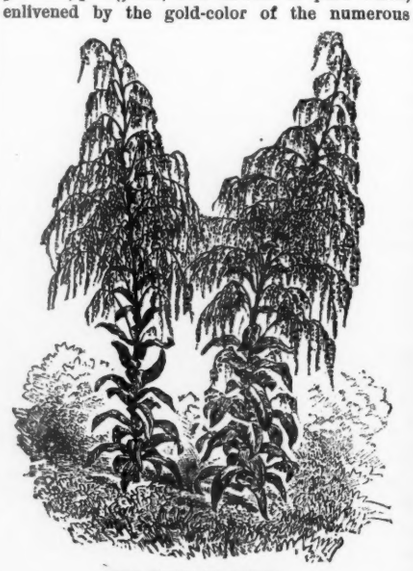
The Pansy gives its most satisfactory bloom in the fall, when the weather becomes cool. Spring-sown plants will be in their glory then. To grow good plants for next season's blooming, sow seed in August. When the plants have grown a half-dozen leaves, transplant them from the seed-bed, planting them about a foot apart. In fall, when cold weather sets in, put some evergreen branches over them. This protection suits them better than any other. It gives them all the shelter they need, and does not allow the snow to pack about them and smother them. The Pansy likes plenty of air, and a close covering in winter will weaken it. Rather than cover plants with a thick mass of straw, as many do, we would leave them uncovered. Old Pansy plants should be cut back well in spring, to induce a fresh growth of branches. It is a good plan to raise new plants every year, to take the place of plants which have blossomed through the season. A bed of the improved Pansies is a miracle of color and beauty, and no garden is complete without them.

A New Shrub—Carpenteria.

Among the specimens brought home by Gen. (then Lieut.) Fremont from his explorations in 1845, were the fragments of a shrub, which Dr. Torrey recognized as new, and named *Carpenteria*, it being

THE CALIFORNIA CARPENTERIA.

dedicated to the memory of the late Dr. Carpenter, of Louisiana, who had done much to investigate the botany of his native State. The shrub has recently been brought into cultivation by John Saul, of Washington, D.C., and through him it has reached the cultivators of Europe. It is closely related to the *Philadelphus*, or mock orange. *Carpenteria Californica* is an evergreen, much-branched shrub, which, in its native localities, forms a dense bush from six to fifteen feet high. Its foliage is of a peculiar, pale-green, with flowers of pure white, enlivened by the gold-color of the numerous



THE ELEGANT HUMEA.

stamens. The engraving, half the natural size, indicates it to be a remarkably showy plant, and one that will be very popular wherever it proves hardy. In England, where Californian plants generally succeed, this has not been found to be quite hardy, and it has yet to be tested in this respect in our Eastern States.

The Elegant Humea (*Humea elegans*).

Amateur flower gardeners are notably impatient; if seeds do not come up soon after they are sown, they dig them up to see if something is not wrong; and cuttings are pulled up, soon after they have been placed in the ground, to examine them for the first appearance of tiny roots. It is owing to this impatient spirit that we see so few biennials in our flower gardens. To sow seeds, and wait until next year for the plants to flower, is something not to be thought of. Their impatience deprives flower-lovers of many desirable plants, among which is the Humea, which we rarely see, because few will raise the plants, keep them through the winter and set them where they are to bloom the following spring. The Humea is a native of New South Wales, and was so named in honor of Lady Hume. When the seedling plants are set out in the second year a leafy stem rises about six feet high; from the axils of its leaves proceed slender branches, bearing a profusion of small, dark-crimson or purplish flowers, under the weight of which the branches droop in a most graceful manner, presenting a singularly beautiful fountain-like appearance. The flowers have a peculiar bronzy luster, which greatly hightens their beauty. The plant belongs to the great Composite Family, and the "flowers" are really little heads containing three or four small florets. The engraving shows the habit of the plant, and it may be readily imagined that a single specimen, or a group of several plants, is most effective upon the lawn. The Humea was introduced at the beginning of the present century, but it is so seldom seen in cultivation that it is new to the present generation of flower growers. It is one of those really meritorious plants that should not be lost sight of. Good seedling plants should be potted and kept through the winter in a cool greenhouse. It is possible that they may be kept in the cellar in a dormant state, but we have not tried this method of wintering them. Florists should offer the plants.

A Primrose Conference.

Sometime last winter we received from Dr. Masters, secretary, an invitation to attend a "Primrose Conference," to be held in London, the coming April. The circular invited the exhibition of native and cultivated plants of the genus *Primula*, and related genera. The Primula Conference and Exhibition were recently held, and were a great success, not only in the numbers and variety of the flowers exhibited, but the papers read at the Conference and the discussions which followed them were of great interest. It is largely due to the special societies, devoted to the cultivation of one particular flower, that floriculture has reached its present advanced state in England and other parts of Europe. There are, in England alone, some thirty societies devoted to the chrysanthemum, while rose, violet, orchid, and other societies are numerous. The association of those engaged in the cultivation of a particular flower, and the friendly rivalry thus induced, leads to a perfection in culture not otherwise obtainable. The "Gardener's Chronicle" devotes a large share of one issue to accounts of the exhibition and conference, and celebrates the occasion by giving an engraving illustrating Wordworth's lines:

"A primrose by a river's brim
A yellow primrose was to him,
And it was nothing more."

This engraving is so full of beauty that we reproduce it for our flower-loving readers. Ours is not a primrose country, as it produces but two species east of the Mississippi. We are glad to know that one of these, the exquisite and rare little *Primula Mistassinica*, was sent to the exhibition from the Cambridge Botanic Garden, by Dr. Gray. Not only were species exhibited in perfection, but many interesting and beautiful hybrids were shown, which had been obtained by the labors of careful cultivators. The "Gardener's Chronicle" thus concludes its account: "On the whole, it may be said that if the Royal Horticultural Society has had many more gorgeous and comprehensive shows, it has never had one more interesting, or, in its way, more useful than this."

"A PRIMROSE BY A RIVER'S BRIM."

Geraniums for Winter Blooming.

EBEN E. REXFORD

We notice every year, advice to amateur florists to use only young plants of geraniums for winter blooming. I have tried both young and old plants, and I am in favor of old plants, every time. A young plant—meaning, by that, a plant started in the spring, will not have many branches for the first year, consequently it will not have much blossoming surface. It may bloom well, but if many flowers are wanted, you must depend on old, well-branched plants for them. Some plants will not bloom well after a certain age is passed, but the geranium will bloom for years, and as long as plants keep in a healthy condition, I would not throw them aside for young ones, unless they become too large for the space allowed them. I have plants six and seven years old, and they give me a profusion of flowers every winter. One such plant is worth a dozen small ones.

In spring, I put them out on the veranda and cut them back well; indeed, I cut off at least two-thirds of their branches, trimming them into as symmetrical a shape as possible. In a short time, half a dozen new branches will start for every one cut off, and by fall I have compact, bushy plants, well furnished with blossoming points. I keep all buds picked off through the summer and do not encourage a vigorous growth. My aim is, to keep them as nearly dormant as possible, and in order to accomplish this I give only enough water to keep the soil moist. A slow, healthy growth will result. In fall, before taking them into the house, I repot them, using a compost made up of garden mold, well-rotted manure and sand. The light-colored varieties seem to be the freest bloomers in winter.

Gloxinias.

One of our best summer blooming plants for the conservatory or sitting-room is the Gloxinia. It is a plant seldom seen outside the collections of wealthy persons who afford the luxury of a gardener, and it is on this account that the impression prevails that it is a difficult plant to manage. We have not found it so. The bulbs or tubers should be procured in spring, and planted in small pots, in a soil composed principally of leaf mold and sand. This seems to suit the Gloxinia better than any other soil we have ever used. Very soon they begin to show signs of growth. When their roots fill the small pots in which they were started, then shift to about four-inch pots, and when buds appear, give a final shift to six-inch ones. If started in March the plants will come into bloom in June, and from that time until November they bear a constant succession of beautiful flowers. Give them a good light, but never keep them in sunshine, as it injures the flowers and causes them to fade sooner than they would if out of it. Keep the soil moist all through, but never wet; give them a place where they are not likely to receive much water on their leaves from the daily showering other plants in the conservatory receive. They like a moist air well enough, but are impatient of water in contact with their foliage.

There is no trouble whatever in wintering the roots safely. When the plants show signs of wanting to rest by ceasing to bloom, withhold water. Soon the leaves turn yellow and fall off. Then put the pots in some dark corner of the conservatory, and let them remain there until spring, without water except what the soil absorbs from the moist air, and one seldom loses a bulb. This plant is magnificent in color. We have them in white, pink, scarlet, purple and yellow, with spots, blotches and other peculiar markings, and a good collection of them is a sight worth going a good distance to see.

Small Fruits on the Farm.

Most farmers do not live up to their privileges as they might if their minds were not so filled with plans about the wheat, oat, and corn fields, to the exclusion of what seems trifling and unimportant undertakings. To be sure, the money for which the farmer works comes mostly from these crops; but there are other things of great value which he ought not to ignore. This is particularly true of small fruits in the garden. Every farmer's family should raise enough of these to last the year around. They can easily do so if they set about it in the right way, and this way is an easy one if they will only read and follow the advice given repeatedly in the *American Agriculturist*. A great many farmers' wives depend on the meadow for their strawberries, and the pastures for their raspberries and their blackberries. As most of their neighbors do the same, the supply is not often equal to the demand, and a few berries during the season are all that the family gets. With a bed of strawberries in the garden, of good varieties, cultivated properly, there will be enough for use through the season of them, and some to "put up" for winter use. The same with raspberries. And the pleasure nicely canned fruit affords the palate in winter is only excelled by the healthfulness of it. Winter time on the farm generally sees a rather monotonous bill of fare, and without fruit to draw from, the housewife is often puzzled to know how to secure that variety which she knows will be appreciated. The expense and trouble of cultivating currants, gooseberries and strawberries is small in proportion to the value received.

To stock a small garden with the best varieties requires only a few dollars outlay, and the skill necessary to keep them in good condition is within the reach of any one who is interested in the matter. We generally see a few scrubby and neglected currant bushes in the grass along the garden fence, but not in one garden in a dozen do we see much more in the line of small fruits. That men are fond of these fruits is proved by the avidity with which they dispose of them when placed before them in the shape of pie, shortcake, or eaten with sugar or cream. They seem to forget, or overlook the fact, that the season of enjoying these luxuries need not be confined to summer. Canned fruits are nearly as good during the winter, if properly put up, as when fresh, and the expense and trouble of putting them up is not great. More money is usually spent for prunes and other dried fruit during the winter in families where fruit is not put up, than it would cost to purchase jars and sugar to prepare a supply at home. The women will take care of the fruit if they only have it to take care of, and will be glad to have the chance to do so. Should more fruit be produced than the family can consume, it will meet with a ready sale at the nearest village, and usually bring the grower better returns than if sent to the overstocked markets of a large city. Sell none but the surplus.

THE HOUSEHOLD

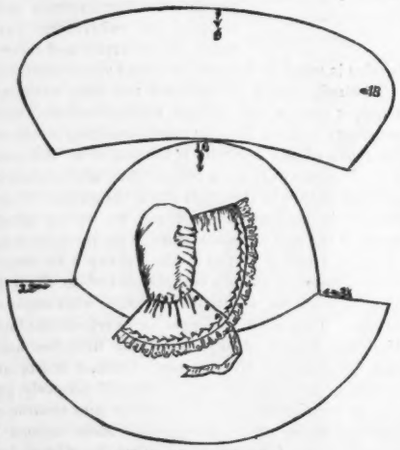
Convalescent Children.

E. H. LELAND, AUTHOR OF "FARM HOMES."

Very often the convalescence of children is retarded by a depressing *ennui*. Little children have not the mental resources nor the philosophy of grown-up invalids, and if too young or too weak to read, it goes hard with the patient—and with the nurse, too—if he must lie still all day, sighing and moaning: "Oh, I wish I could get up"—"Oh, dear, I am so tired of this old bed,"—"Oh, when can I go down stairs?" and all the fretful lamentations familiar to mothers and nurses.

As it taxes one's ingenuity to amuse and pacify these little patients, I will mention two or three things I did for my boy when he was recovering from diphtheria, hoping the experience may be of use to some other mother. Of course, I soon exhausted stories, and the mild play with such toys as weak little hands can manage, and the old cry of "Oh mamma, what can I do?" set in again.

The walls of the sick room were of bare plaster—as all sick-room walls should be, for a coat of lime makes them all fresh and pure again—and when my weary child sighed, among his many sighs, for "something new in the room to look at, I bethought me of a roll of pictures saved from a year's numbers of a London illustrated newspaper. These I brought into the sick-room and pinned all about the walls. The effect was very enlivening. The room seemed suddenly enlarged—as if it all at once opened out upon all the quarters of the globe. There were broad landscapes and wild marine scenes, battle fields, Christmas firesides, noble portraits of horses and dogs, brave generals and fair women, pretty groups of children, and tumbling waterfalls. The small invalid was delighted. Then I brought him a long, light stick—a piece of inch moulding, it happened to be—with which he could point at the different pictures while he asked as many questions as he liked. This stick was an inspiration. It was like having arms six feet long, and the boy had great fun "visiting all around the world" with it, as he expressed it. As long as he staid in bed the first demand in the morning was—"Give me my poke-stick, mamma." As I had to be out of the room a good deal, I fixed a call-bell on the foot of



SUN-BONNET PATTERN.

the bed, and we arranged a code of signals that proved quite entertaining. Three taps on the bell with the "poke-stick" meant a drink of water; four taps, a clean handkerchief; six taps meant "I am hungry;" eight taps, "What time is it?" and twelve taps signified that the pillows needed shaking up and the bed straightened generally.

After a while I attached to the stick a bit of string with a bent pin attached, scattered some old toys about the floor, and the invalid had a grand season of "fishing." It was amusing to see how shy some of the fish were, and what a time it was before they would consent to bite. And then the excitement of landing them in the bed—which was now a boat, of course—was immense.

I am sure these little beguilements helped on my boy's recovery, for they kept his "spirits" in a cheerful condition, and cheerfulness is a very helpful medicine.

A Hop Pillow.

The hop pillow seen here is made in the shape of a sofa cushion of unbleached muslin, with a cover of gray linen that can be slipped off and washed. A branch of hop vine is embroidered on it in outline stitch, with olive-green and red crewels; just

HOP PILLOW.

a dash of the red is used here and there on the leaves. A dark-red cord finishes the edge; a bow of ribbon of the same shade is placed in one corner.

Child's Sun-Bonnet.

A pattern for a child's sun-bonnet can be easily cut from the diagram here given. It can be made of white goods or light calico. The front piece is cut double and has an interlining of coarse, white muslin. The crown and cape are cut together and separated with a shirr run in, as indicated here by the dots. The cape is hemmed around the bottom and the side, where it is joined to the front. Button-holes are made in this part, and buttons sewed on the front to fasten it together. The top of the crown has a shirr string run in it. It is shirred up and sewed on the front; this can be easily detached when it is to be laundried. A row of feather-stitching is worked around the bonnet in red or blue working cotton; the strings are of ribbon to match it in color. Linen lace is sewed on the edge of the bonnet to give it a pretty finish. Of course, the same pattern can be used for a plainer, or more elaborate bonnet. One yard of material will be required to make one.

Refooting Stockings.

This pattern is for a medium-sized foot, one that wears a No. 4 shoe. The bottom is laid on the fold of the stocking it is to be cut out of, so there will not be any seam until it begins to round. The rounding parts at the heel and toe are sewed together, the seams laid open and cat-stitched. The stocking leg is then fitted and joined to the foot-part, and the seams cat-stitched. The foot is then laid on the leg to which it is to be joined, and the leg cut to fit it; these are seamed together, as shown in the illustration.

PEACH CREAM.—Peal and then mash through a colander peaches enough to make one quart of pulp; add to this the whites of three eggs, one cup of water, and sugar sufficient to make it very sweet, as some of its sweetness is lost in the freezing; then put it into the freezer and freeze like any other ice cream.

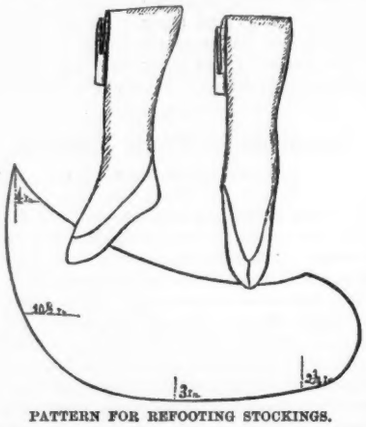
Children's Fashions.

The leading features in small girls' dresses are short waists and full skirts; many of the former being cut off just under the arms, and the latter extended to the ankles; giving the tiny maidens the picturesque appearance of quaint Dutch peasants. It is prettier, however, to strike a happy medium, if possible. For every-day wear these frocks are made of pretty sprigged calicos, sateens, or cambrics, or else warm, dark-red, brown or blue flannels, suitable for the seaside or mountains, for it is no longer considered necessary to keep young children always in white, and there is a decided tendency toward bright, rich shades for these small toilettes.

It is well, however, to have several white muslin frocks for afternoon and dressy occasions. For girls of from three to ten years of age, these are sometimes made with a low, round, sleeveless waist, entirely of embroidery; or else open in V-shape, and laced across with narrow cherry, blue, or yellow ribbon, with a preference for the latter. These ribbons are passed through eyelet holes, and small epaulettes of embroidery finish the shoulders. The Gretchen dress is, perhaps, the prettiest of all; cut square nearly to the waist and strapped across with ribbon or velvet. Like all low-necked dresses, this is always worn with a guimpe, which is a high, white waist of nainsook or Victoria lawn, buttoned behind, and trimmed in yoke fashion at the top, but without gathers below, being held around the waist by a simple drawing string. The long sleeves are slightly full at the top, and have a wristband of embroidery, or a turned-back cuff. Light-blue, pink, or buff cashmere, or Albatross cloth, are lovely for these tiny costumes, to be worn with white guimpes; and the skirt must be very full, indeed, to be graceful.

Plain colored skirts have a hem four inches deep, and five or six half-inch tucks above it; but for handsome white frocks, insertion is set in between clusters of tucks, or else nearly the entire skirt is formed of embroidery, such as comes for ladies' flounces. The sashes most in vogue, are of the dress goods, hemmed and tucked, or embroidered across the ends. These pass around the waist and are tied in an immense bow behind.

The first short dresses for infants are yoke slips; and they are liked for all girls under five, with the yoke and sleeves trimmed to imitate a



PATTERN FOR REFOOTING STOCKINGS.

guimpe. They hang loose in front, but are confined by a sash of the material in the back. High yoke dresses are worn by all girls up to fifteen years of age, and they are decidedly commended for school frocks, being easily laundried. To be stylish, however, the yoke should be very deep, the gathered part, short and full, and the belt extremely narrow. The full skirt may be plain, tucked, or elaborately trimmed with embroidery. The only silks used for children are the light summer silk foulards, in soft, æsthetic colors, or

else the pin-head checks, and small, gay, Scotch plaids. A great favorite with large school-girls and misses, is the Norfolk belted waist, which is worn with a tucked or kilt skirt, and apron over-skirt; or, if made of checked, plaided, or plain dark woolen material, it is suitable with any skirt. It is a strong rival of the ever-useful Jersey. For out-door wraps on cool days, small girls have short-waisted walking coats, of rough cloth, made with two large box plaits in the back, and two rosettes defining the waist line. Larger misses prefer the short, jaunty jackets, or redingotes, with shoulder capes. All ages, however, wear dark straw hats with large crowns and wide brims. These are faced with dark velvet, and are trimmed with high, narrow loops of ribbon or crape in front, a fold around the crown, and a bunch of flowers on the left side. It is considered very stylish to put white flowers and ribbons on dark hats.

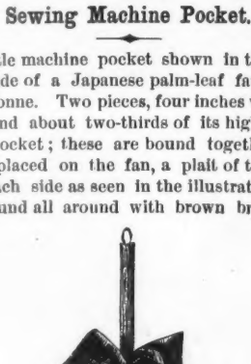
Infants, and tiny girls, look best in the French muslin caps, exquisitely tucked, and feather-stitched by hand. These have extremely high, puffed crowns, and close fronts. Those for baby boys are more toque-shaped, round and stiff, and more boyish looking.

An excellent importation for little lads to wear in the country, are the soft, strong Jersey suits. These consist of a shirt and knee-breeches, striped and plain combined—as, a striped navy-blue and red shirt, with plain blue trowsers. Jersey caps come to match, and the whole outfit will be found most comfortable to knock about in, as it will stand pretty rough usage.

Black stockings are the most fashionable for both girls and boys, but dark-brown and blue are also worn, and buttoned gaiters without heels, are the first preference in black kid or morocco shoes.

Sewing Machine Pocket.

The little machine pocket shown in the engraving is made of a Japanese palm-leaf fan, covered with cretonne. Two pieces, four inches wider than the fan, and about two-thirds of its hight, are cut for the pocket; these are bound together across the top, placed on the fan, a plait of two inches laid on each side as seen in the illustration. The fan is bound all around with brown braid, and a



CONVENIENT SEWING MACHINE POCKET.

bow of the same shade is tied on the handle. A loop, or a small brass ring, is fastened at the end to hang it up by.

A Floral Awning.

If any of our readers have doors or windows for which they would like an awning, they may make one that will be more satisfactory than any they could buy, all through the season in which awnings are needed. It will be more satisfactory because it will be ornamental, and that is something that cannot be said of awnings in general. Procure some strips—lath is just what you need—and saw off four of them the width of the door or window you intend your awning for. Nail these together in a square, and fasten two other pieces across from corner to corner. This makes the top frame-work of your awning, and is to be fastened

Fig. 1.—A MORNING GLORY AWNING.

to the top of the door or window frame. As a support to it, put on a strip on each side, to run from the outside corners down to about the middle of the door or window. A look at the accompanying illustrations will show you how to arrange it. In the triangular space between this brace, the door-frame and the top of the awning, fasten an old barrel hoop. Over this rough frame-work train morning glories, or any other quick-growing vines, and you will have, after a little, a perfect network of greenery and blossoms. Such awnings are easily made, and are extremely graceful in appearance.

Knitting.—A Pretty Bed-Spread.

To those women tired of the old patterns for knitted bed-spreads, I would say, try the following which is made in strips. The materials necessary for the spread are, 2 boxes of No. 10 three-thread knitting-cotton, or, if it is desired heavier, use four-thread. Two steel needles, No. 14. Cast on 38 stitches; 1st row, plain knitting; 2d row, slip 1, (seam 5, 2 plain, make 1, narrow, make 1, narrow, knit 1 plain); repeat what is between brackets over and over until last stitch, knit that plain; 3d row, slip 1, (seam 7, knit 5 plain); repeat between brackets over and over until the last stitch, which knit plain; 4th row, slip 1, (seam 2, 4 plain, make 1, narrow, make 1, narrow, 2 plain), repeat between brackets until last stitch, which is plain; 5th row, slip 1, (seam 10, 2 plain); repeat between brackets until last stitch, which is plain; 6th row, slip 1, (seam 2, 3 plain, make 1, narrow, make 1, narrow, 3 plain); repeat between brackets until last stitch, which is plain; 7th row, like 5th row; 8th row, slip 1, seam 2, (2 plain, make 1, narrow, make 1, narrow, 1 plain, seam 5); repeat between brackets until last stitch, which is plain; 9th row, slip 1, 3 plain, (seam 7, 5 plain); repeat between brackets until last stitch, which is plain; 10th row, slip 1, 3 plain, (make 1, narrow, make 1, narrow, 2 plain, seam 2, 4 plain); repeat between brackets until last stitch, which is plain; 11th row, slip 1, seam 1, (2 plain, seam 10); repeat between brackets until last stitch, which is plain; 12th row, slip 1, 2 plain, (make 1, narrow, make 1, narrow, 3 plain, seam 2, 3 plain); repeat between brackets until last stitch, which is plain; 13th row, slip 1, seam 1, (2 plain, seam 10); repeat between brackets until last stitch, which is plain; 14th row, slip 1, 1 plain, (make 1, narrow, make 1, narrow, 1 plain, seam 5, 2 plain); repeat between brackets until last stitch, which is plain; 15th row, slip 1, seam 1, (5 plain, seam 7); repeat between brackets until last stitch, which is plain; 16th row, slip 1, (make 1, narrow, make 1, narrow, 2 plain, seam 2, 4 plain); repeat between brackets until last stitch, which is plain; 17th row, slip 1, seam 4, (2 plain, seam 10); repeat between brackets until last stitch, which is plain; 18th row, slip 1, 1 plain, make 1, narrow (3 plain, seam 2, 3 plain, make 1, narrow, make 1, narrow); repeat between brackets until last stitch, which is plain; 19th row, slip 1, seam 4, (2 plain, seam 10); repeat between brackets until last stitch, which is plain; 20th row, slip 1, make 1, narrow, (1 plain, seam 5, 2 plain, make 1, narrow, make 1, narrow); repeat between brackets until last stitch, which is plain; 21st row, slip 1, seam 4, (5 plain, seam 7); repeat between brackets until last stitch, which is plain; 22d row, slip 1, 3 plain, (seam 2, 4 plain, make 1, narrow, make 1, narrow, 2 plain); repeat between brackets until last stitch, which is plain; 23d row, slip one, seam 7, (2 plain, seam 10); repeat between brackets, until last stitch, which is plain; 24th row, slip 1, (3 plain, seam 2, 3 plain, make 1, narrow, make 1, narrow); repeat between brackets until last stitch, which is plain; 25th row, slip 1, seam 7, (2 plain, seam 10); repeat between brackets until last stitch, which is plain; repeat from second row until stripe is long enough, then bind off. Make as many strips as desired for width of quilt, and sew together. Some makers of thread send out an illustrated pamphlet, showing many designs of quilts; they are probably to be had of the dealers.

Home Recipes.

To Preserve Citron-Melon.—Slice and peel six large citron-melons; remove the seeds and cut the slices into pieces one, or one inch and a half thick, and about two inches long; weigh the fruit, and allow three-quarters of a pound of granulated sugar to each pound of melon. Then scrape and cut into slices one pound of fresh, green ginger. Put one quart of water into a preserve kettle, stir into it the sugar, and let it boil, stirring constantly until it is as clear as water; then put in the ginger and the citron, and cook over a slow fire until the pieces are quite tender, and of a clear, transparent, pale-yellow color; when the citron is about half cooked, add from eight to twelve lemons, according to taste, cut into slices, the seeds having been carefully removed, as they would give the preserve a bitter taste. If properly done, the syrup will be of the consistency and color of rich maple syrup. This preserve will keep a long time in stone jars holding about one gallon, if white paper dipped in brandy is laid closely over the top of it when cold. Tie up with stout paper and store in a cold, dry cellar.

Preserved Peaches.—Put three pounds of cut loaf or granulated sugar with a tumblerful of of water on the fire, and, stirring it, let it boil until clear and liquid; skim, put in four pounds of care-

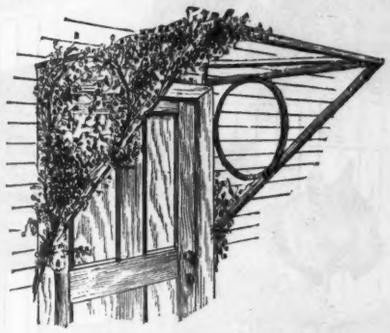


Fig. 2.—A CLEMATIS AWNING.

fully peeled peaches, which must be thoroughly ripe, yet not soft. Cover tightly, and let them boil from five to eight minutes, according to the size of the fruit. With a silver fork take the peaches out and place into well heated preserve glasses; pour the syrup over them, filling the jars to the brim, and immediately close them up air-tight. Bartlett pears may be preserved in the same manner. Fruit thus prepared retains its fresh flavor for a long time.

Imperial Cake.—Rub three-quarters of a pound of butter to a cream; add the yolks of ten eggs, and one pound of sugar, stirring until it is very light and foamy; then gradually add one pound of flour, half a pound of blanched and finely powdered almonds, half a pound of citron cut into small pieces, one pound of stoned raisins, and one wine glass of brandy. Bake in loaf pans in a moderately hot oven. Cake thus made will keep for months.

A GREAT VARIETY TO SELECT FROM.

BOYS & GIRLS' COLUMNS

Our Pussy Cats.

AGNES C. SAGE.

Ah! What have we here? A cat show, beyond a doubt! And some very fair specimens, too, of the soft furry race—the domestic pets that purr on our hearths, and make our firesides seem more cosy and home-like, when the curtains are drawn and the flickering flames cause long, fantastic shadows to dance upon the walls. What boy or girl does not like a clean, playful pussy cat? A few perhaps, who are born with a natural antipathy to them; but these are the exception, and although we do not worship cats, as did the ancient Egyptians, or fear them, as in the superstitious days of witchcraft, or eat them for dinner like the Chinese; yet we love to see them about our homes, and enjoy watching their merry pranks as they leap and curvet, the very essence of sprightly grace—chase a string, or entangling themselves in the meshes, indulge in a game of cat-cradle, like the jolly little ball of fur and fun in cage No. 8 of our illustration. Of late years these cat shows have become very popular, particularly in England, and many a loving little mistress has proudly displayed her darling black, white, or Maltese pet, and experienced a thrill of rapturous triumph when its glossy coat, bright eyes, or cunning pink nose won for it the much desired medal. In this instance, were we among the judges, I fancy the shining bauble would have been bestowed upon the comfortable looking mother with the sweet, amiable expression in No. 9, who is so contentedly watching her two pretty kittens; but No. 14, who appears to have been the lucky one, is probably a younger feline, while her spirited, alert air would indicate that she is a pussy of some talent in the mousing line. See how proudly she holds her head, as though aware of the honor conferred upon her! She probably owes it, however, to the good management and training of her master or mistress, for more depends upon the bringing up of a kitten than is generally thought. A baby kitten should sleep through the greater part of its kittenhood, only waking up toward evening for a game of romps; and until three or four months old should never taste anything but warm milk and water. Greasy food, or that seasoned with pepper and salt, must be strictly prohibited if pussy is expected to have a smooth, glossy coat; and it is well to remember, that cream is almost certain to make a full-grown cat ill, while it is liable to kill a young kitten; rich milk also should always be diluted with water.

"Cats differ as much in character as human beings do, and like human beings, their character is very much to be predicated from their countenances," says a recent writer; and now just glance over our engraving and see if this is not true. Who can doubt the greediness of No. 3, helping himself from the dinner pail left on the ledge; while No. 4, scrambling up to investigate the basket of tools, is proof of Voltaire's theory that "curiosity is innate among animals." "The sportsman" is expressed in the very attitudes of Nos. 1 and 2; but sleepy 13 would hardly stir if a mouse crossed her path, although she is probably:

"A cat of a Persian race,
With a snow-white coat,
And a beautiful face."

No. 5, too, is evidently a first-rate ratter; and Mr. Jones' pet, popping her head out of the basket, has a good, honest countenance, though probably not possessed of much brilliancy or intelligence; but the ugly, hyena-looking creatures in No. 10 are too evidently the stuff of which midnight serenaders are made. Sly and treacherous, they are the vagabond cats that make night hideous with their unearthly howls, and steal the Sunday dinner from unwary cooks.

From the earliest ages cats have figured conspicuously in both history and fiction; and evidences of their sagacity, and susceptibility of cultivation are beyond dispute. Among the Egyptians, they were not only considered sacred but, as is shown by paintings on ancient tombs at Thebes, frequently accompanied sportsmen on their hunting expeditions, and were trained to hunt and carry waterfowls like a dog. An interesting anecdote is told of a French cat that lived in a cloister, where it was the custom to announce the hours of meals by ringing a bell hung in the tower, and Miss Pussy made it a point always to be within hearing, as she never received food at any other time. One day, however, she happened to be shut up in a solitary apartment when the bell rang, and was unable to answer the summons. On being released, some hours after, she ran, half famished, to her accustomed plate, but found it empty. During the afternoon, all in the convent were astonished by the bell ringing at an unusual hour, and on hastening to inquire the cause, found the hungry cat hanging on the bell-rope, and trying with all her little pussy might to set it in motion, in order that her dinner might be served up to her. Let us hope her cuteness was rewarded as it deserved. During the Middle Ages, cats were frequently burned, together with sorcerers and *savants;* and in France it was customary to make martyrs of a few unfortunate felines at the festival of St. John. One of the pretty stories told of the Dauphin, afterward Louis XIII., is that in 1604, when but three years old, he interceded with the king and queen, to spare the lives of the poor cats to be burned in the bonfires on St. John's day.

Cats have also figured in courts of law; one particularly funny suit, creating a great sensation, where a brother insisted that his sister was of unsound mind because she "had had a tooth of her deceased cat set in a ring." This certainly seems absurd, but is it more so than for the great Mahomet to have cut off the sleeve of his robe, rather than disturb his pet Muezza, who was enjoying a cat-nap upon it? Many clever people, as well as spinsters and children, have had an attachment for pretty puss. Cardinal Richelieu is said to have kept a number of kittens in his cabinet, to amuse him with their saucy pranks, but always changed them when they were three months old. The poet Cowper, and Dr. Johnson, both had a penchant for Grimalkin; Petrarch was so fond of one favorite tabby that on its death he had it embalmed, while Southey has given us a curious and amusing chapter on the "Cats of his Acquaintance."

You see, then, that all of us who have a fancy for our little kitty-cat friends have many illustrious examples to keep us in countenance; and there is no creature of the mute creation, that will better repay kind care and tender treatment.

The Doctor's Talks.

I have several questions which I shall answer in the Boys' and Girls' Columns. Though some of them may have been asked by grown people, they are about matters which interest young people.

WHAT IS A LICHEN?

Every now and then I have had occasion to speak of Lichens, and have described them as "plants of a very low order, found on old trees and rocks, and are improperly often called mosses." Lichens belong to the great series of flowerless plants, having no real flowers, and forming no seeds; they are multiplied by minute, dust-like bodies, called spores. Lichens are mostly flat, expanded bodies, which, when dry, are hard and brittle, and appear very unlike ordinary plants. They are usually attached to rocks, etc., by their lower surfaces, and lie flat, though some imitate stems and branches, like the Reindeer Lichen, figure 1, and the Cup Lichens, figures 2 and 3, and the Bearded Lichen, figure 4. Lichens never grow in water, but upon rocks, the bark of trees and on the ground, and draw their nourishment from the air. They are usually some tint of brown or gray, rarely green. The spores are placed in little cups or shields, which are usually

Fig. 1.

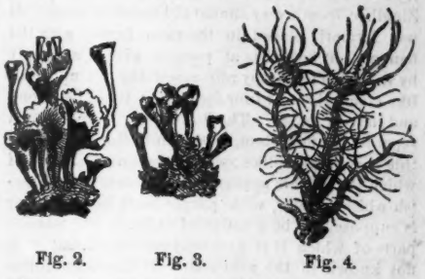


Fig. 2. Fig. 3. Fig. 4.

different in color from the rest of the surface; in the Cup Lichen, figure 3, they are often bright scarlet; you must have often seen this showy little lichen upon dead trees and old stumps. The Bearded Lichen, figure 4, which is often met with hanging from the branches of trees in dense woods, has large spore-cases at the ends of the branches.

OF WHAT USE ARE LICHENS?

Lichens are found in all localities, from the coldest to the warmest; on the highest mountains they are abundant, and in the desert. They are found upon fences and buildings; living and dead trees; upon rocks, and upon the ground, which they often cover for several inches in depth. Being so abundant you may well ask of what use are they. In the great order of Nature, lichens play an important part; growing where no other plants can, and thriving upon air, they by their decay prepare soil

Fig. 5.—THE GINGER PLANT.

upon which other plants and those of a higher order can grow. Lichens contain a peculiar kind of starch, and some of them are used as food, being very nutritious—such as the Iceland moss. The black Rock-tripe, Tripe de Roche, of the French, has been found very useful as food by Arctic explorers. The Reindeer Moss, figure 1, is the sole forage of the reindeer for a large part of the year. Several lichens yield a beautiful coloring matter, and are used in the arts, and some are medicinal.

WHAT IS GINGER?

This is a question of the kind I especially like, as it shows a desire, on the part of the youngster who asks it, to know something about articles in common use. As usually seen, ginger is in the form of a grayish-yellow powder, but if you go to

a drug store and ask for "race" ginger, you will be served with the article unground, and you will see that it is the dried root-stock (often called root) of some plant. Race—as applied to whole ginger in commerce—is from the Spanish *rais*, "a root." The botanical name of the ginger plant, Zingiber, from a very similar old Sanskrit name. It was formerly placed in the same family with the banana, but botanists at present give it a family by itself. The fleshy root-stock throws up reed-like stems three or four feet high; these bear long and narrow leaves. The flowers are borne upon a separate, leafless stem, as shown in the engraving; this bears a cone-like spike, between the scales of which the flowers appear. The flowers are yellowish-white in color, with purple markings. Ginger is supposed to be a native of Asia, in the warmer parts of which it is generally cultivated, but it is not known in the wild state. It has been introduced and is now cultivated in nearly every warm country, especially in the West Indies, from which ginger was exported to Europe as early as 1547.

PREPARING GINGER FOR MARKET.

In cities there is sold, in autumn, at drug and grocery stores, fresh or green ginger root. This is the root-stock, just as it comes from the ground, and is used for flavoring preserves. The pieces have one or more green buds attached to them, and if planted in a pot and kept in a sufficiently warm place, will grow. But a very small share of the crop is sold in this state; the ginger, after it is dug, is washed and then exposed to the sun until perfectly dry. This is the ordinary "race ginger" of commerce, and is the kind ground for use. What is called Jamaica ginger is prepared by scraping the rhizoma when fresh to remove the outer portion; these are then bleached by placing them in a solution of chloride of lime. Considerable lime adheres to the surface, and the pieces look as if they had been whitewashed. On account of its nicer appearance Jamaica ginger is preferred for medicinal uses, and is used by some families. There is still another form in which ginger is imported—preserved ginger—which comes from China in porcelain jars. The young and tender "roots" are preserved in sugar.

Snails and Slugs.

While the American gardener has an abundance of insect enemies to destroy his crops, he is, as a general thing, exempt from the snails and slugs which are so troublesome in European gardens. In damp woods we have several fine, large native snails, but these do not, so far as we are aware, enter cultivated grounds. In some localities near the coast, the European garden snail (*Helix aspersa*), figure 1, has been introduced, as has also the European vineyard snail (*Helix pomatia*). In these snails, the animal carries a large shell, into which it can withdraw the soft parts of its body. It moves by the contraction of its "foot," as the muscular projection beneath the shell is called. The most striking portion of the animal is its tentacles, figure 1. The tentacles, or "horns" of the

Fig. 1.—EUROPEAN GARDEN SNAIL.

snail, which are protruded and withdrawn at will, contain the eyes of the animal. The ears of the snail are said to be situated at the base of the tentacles. The snail is very destructive to all succulent plants. Within its mouth it has a bony plate, figure 2, with which, by the aid of its tongue, it is able to devour tender plants and especially strawberries, upon which it leaves the mark of this tooth. Snails are largely used as food in Europe, and one sees them in the markets of continental cities offered for sale, after having been boiled and the opening of the shell closed with a plug of butter and chopped parsley. A slug may be described as a snail without a shell—yet this would not be correct, as there is a shield, or rudiment of a shell, upon the back, as seen in figure 3. There are several native slugs, some of which infest gardens, and an European slug, as large as one's little finger, has been introduced near the sea-coast.

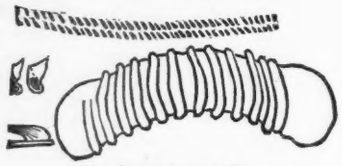


Fig. 2.—BONY PLATE.

The body of the slug is covered with a thick slime. It is very destructive to cabbages, lettuces, and all other succulent plants.

When these pests appear in our gardens, snails are readily hand-picked, and the boys and girls can render their parents much aid in the work. Slugs may be headed off or prevented from reaching plants by a sprinkling of powdered lime upon the ground around the plants. Salt has been used in the same manner with success. Both snails and slugs deposit their eggs in clusters just below the

Fig. 3.—GARDEN SLUG.

surface of the soil. As winter approaches, snails close up the opening to their shells by means of a ring secreted from within; to this is added other rings, until the opening is entirely closed. When spring opens this epiphragm, as it is called, is softened from within and the animal is liberated. Some snails can remain in the dormant state for several years; it is stated that some desert snails were sent to the British museum, which, after a rest of four years awoke, and were kept alive for two years more after their long sleep.

The Peccaries.

The Peccary, often called Mexican hog, with the domestic pig, the elephant, rhinoceros, etc., belongs to the order of *Pachyderms*, or thick-skinned animals. The Peccary differs from the pig in the absence of tusks, its teeth being all straight; the hind feet are three-toed, and the tail a mere rudiment. On the back, a short distance in front of the root of the tail, is an opening concealed by the hair, from which exudes an exceedingly bad smelling liquid. The animal is covered with short, sharp bristles, each of which is marked with black and white in alternate rings. Like the hog, the Peccary will eat whatever food, animal or vegetable, that may come in its way, and while it sometimes damages the crops, it is considered useful on account of the many reptiles it destroys. The Peccary is a native of this country, it being found in Texas, and extends as far north as Arkansas; it is found in Mexico, and in South America as far south as Paraguay. These animals go in couples, or in small parties of eight or ten, and when hunted, act together for general defence. Their teeth are very sharp, and when attacked they often kill the dogs, and the hunter is sometimes so hard-pressed that he is obliged to take to a tree. They are readily domesticated, and though they become very tame, they are of uncertain temper, and at times are irritable and cross. I once stopped at the house of a German settler in Texas; as I was seated on the front stoop a tame Peccary came up and, by its motions and gentle grunting, evidently wished to make friends. I met the animal half way, and began to pet it. Soon after, its owner came and, giving the creature a severe blow, drove it off. He explained as well as his little English would allow, with many gestures, that he was afraid I would touch the gland upon the animal's back, or that it would rub it against me, when the consequences, as explained by his grimaces, would have been unpleasant, indeed. The flesh of the Peccary is eaten; it is much like that of the hog, though less fat. It is necessary to remove the gland on the back, as soon as the animal is killed, otherwise the whole carcass will be tainted with its unpleasant odor. THE DOCTOR.

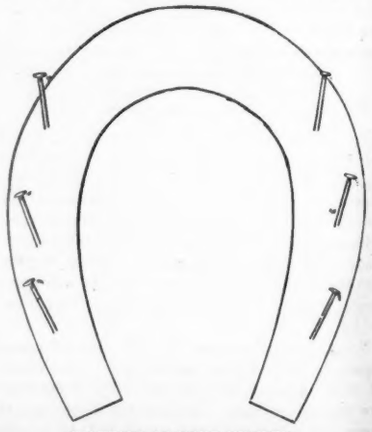
Mucilage.

The best mucilage yet invented, which is suitable for all common purposes, such as joining paper, etc., is that made from gum arabic. Most of the additions which have been suggested in the way of glue, dextrine, British gum, etc., are for the purpose of making the mucilage cheaper. The recipe books are full of directions for making "good" mucilages without the use of gum arabic. Nothing, however, approaches the stickiness of a gum arabic mucilage when first applied. Rye flour paste will hold paper better after it has had time to dry, and for a scrap book it has the advantage of causing none of the discoloration of gum arabic, but it does not hold as well at first.

With the common gum retailing at forty cents per pound in New York, ten cents a bottle for mucilage is certainly a very high price. When the mucilage in the bottle begins to get low, invest in half a pound of a common grade of gum arabic. Fill the bottle more than half full of the gum, and nearly fill the bottle with water. Shake occasionally and an excellent mucilage will result, the "stickiness" of which will surprise those who have only had experience with that which comes prepared from the stores. When made in this way it is a most cooling and pain-allaying application that can be made to a burn. Paint it on, and then apply a piece of the thinnest tissue paper that can be found. It should be applied to the burn immediately, so that the injured surface may be instantly protected from the air.

There is one addition which may be made to gum arabic mucilage which will actually improve it. That is a teaspoonful of common alum to a teacupful of the mucilage. If one happens to be near a drug store, or has a photographer for a friend, half the quantity of chrome alum may be used instead. Made in this way the mucilage must not be applied to burns or cuts, as the alum might produce irritation. A thick mucilage kept covered up does not spoil readily, especially if it has been made with boiling water. Even when it moulds it will stick. Hot vinegar, used to dissolve the gum, tends to keep it. After all, the best plan is to dissolve small quantities, say a bottle full, at a time.

Horseshoe Puzzle.—Cut out of paper a horseshoe like this pattern; and with *two* cuts only divide it into six pieces, each one containing a pin.



SOLUTION IN NEXT NUMBER.

How to Make a Cast.

J. HARRINGTON KEENE.

During these July days, as the farmer's boy saunters on some Saturday afternoon along the meadow brook, or through the mountain stream,

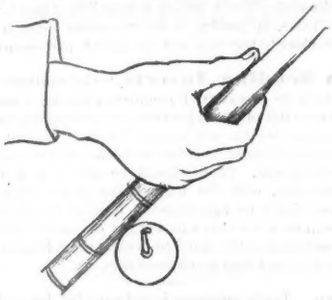


Fig. 1.—MODE OF HOLDING ROD.

with his home-made pole and "domestic line," he is charmed and fascinated with the wonderful manner in which some angler from the City handles his rod and reel. He would give the world if he could throw his line as gracefully, and to such a distance; and yet this is a little accomplishment which may be easily acquired.

Then, there is no better plan than for the tyro to go down to the running brook and patiently practice. The attitude should be easy and that which suits the angler best; it is absurd to tell a man exactly how he should stand, as if he were learning ballet-dancing. However, I take my chances of making myself clear and instructive by the aid of the illustrations.

The trout-rod should be taken in hand as shown in figure 1, and the elbow should be kept as close to the side as possible. My father used to put me through my exercises with a small book placed between the elbow and side, and I have found this a remarkably good corrective for the disposition to swing the arm unduly. This latter does not add to the length of the cast, and certainly detracts from

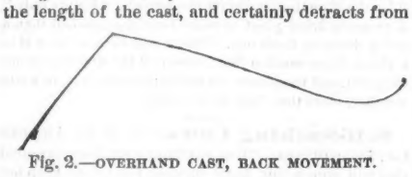


Fig. 2.—OVERHAND CAST, BACK MOVEMENT.

its neatness and precision. The fundamental idea is, "Let your rod do all the work its strength allows"—that is what it is for.

The overhand cast is that which is most generally used, and it is probably the easiest. Let out your line in the water, allowing the current to take it; then recover it till the fly appears on the surface of the water. At this point, sharply throw the point of the rod back over the right shoulder, so that the line is impelled back, as shown in figure 2. When the limit is reached, and not till then, the rod is urged forward and the cast, shown in figure 3, is made. This movement ought to be made as the line is falling (see *b*, Fig. 3), and is a matter rather for the intuitive perception of the hand than for nice calculations on paper. If this forward throw or cast is made before the limit of the line is reached, the latter curls and snaps (see *a*, Fig. 3) like a whip, and the result is the loss of your fly. Now, there

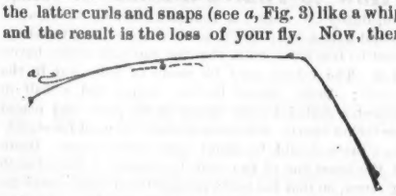


Fig. 3.—OVERHAND CAST, FORWARD MOVEMENT.

isn't much in this to learn, and I purposely refrain from giving minute particulars as to how this cast is made. The learner, in trying to follow the *minutiæ* of such detailed explanations, gets too particular and nervous—fussy, and in trying so very hard to perform what he imagines a difficult task, he throws a great deal too much conscious effort into it and fails ignominiously. Preferably, take a friend to the water-side with you who is warranted to be absolutely ignorant of fly-casting and, necessarily, unable to criticise, and assign him the task of telling you, by a word, when the forward motion is to be made. After a short time you will come to appreciate the precise moment and can send him home. Don't be disappointed at failure. The line should fall forward, as shown in figure 3. When you can place twenty yards out straight in front of you, as represented, consider yourself graduated as an "overhand caster."

The "wind cast" is one that is very useful when the wind is dead against one. The dotted line in figure 4 indicates the movement of the rod in the beginning. The line must, with the full strength of the arm, be propelled up overhead and then brought down and forward, right in the teeth of the wind, till the rod's point almost touches the water, without pause. The full strength of the rod is exerted by this cast.

The "underhand cast" is made from right to left, as shown in figure 5, or *vice versa*. The dotted line shows the path of the fly, and this is prob-

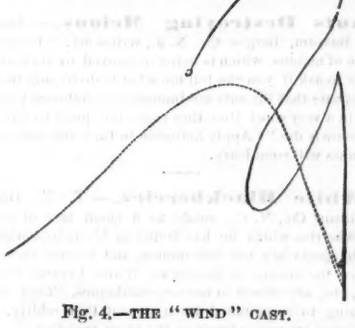


Fig. 4.—THE "WIND" CAST.

ably the easiest of all the casts—the rod doing nearly all the work.

The "flip casts" are extremely useful when one is negociating water under trees, and, indeed, the line is, in some cases, impossible of extension in any other way. The cuts (Figs. 6, 7 and 8) explain themselves. The hook is taken in the hand between thumb and forefinger (and be careful not to hook yourself!), and the rod then bowed so that on your releasing the bait it flies to the spot it is desired to reach. In figure 6, *a* represents the path of the fly and *b* the water-line in which the angler is standing.

The Buffalo Moth.

There was much consternation among the housekeepers in various localities in Western New York,

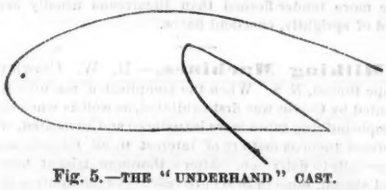


Fig. 5.—THE "UNDERHAND" CAST.

and farther west, and in towns along the Hudson, when they found that their carpets were being ruined by an insect heretofore unknown. This insect was first noticed in 1874, and was given the popular name of "Buffalo Moth." At the time, we described the insect and gave the method of destroying it. So widely has the insect spread, in late years, that it is new to large numbers of our readers, and inquiries continue to come regarding it. The name Buffalo moth is an incorrect one, but it is too well fixed to make it practicable to change it. It is not a moth. The scaly-winged insects, *Lepidoptera*, are divided into butterflies which fly by day and, when at rest, hold their wings upright, and moths which fly mostly by night or in the twilight and, when at rest, their wings are more or less sloping, like the roof of a house. The common clothes moth is a true moth. Its larva, or caterpillar, feeds on woolen cloth, etc.; and the perfect insect, often called a "miller," is seen flitting about in the evenings of the spring months. The Buffalo moth is in all respects unlike the clothes moth, save that its larva or caterpillar, is most destructive to woolen fabrics. Beyond this they have nothing in common. The perfect insect

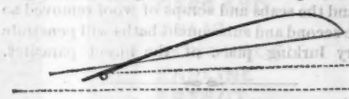


Fig. 6.—THE "FLIP" CAST.

of the Buffalo moth is not a moth, but a beetle belonging to the order *Coleoptera*, the delicate wings in which are covered by hard wing-covers. The "moth," or larva, is three-sixteenths of an inch long, and is clothed with numerous dark-brown hairs. It is probable that the shaggy appearance due to these hairs, suggested the name "Buffalo." When full-grown, the larva assumes the pupa state, and in a few weeks the beetle, or perfect insect, comes forth. The beetle is about an eighth of an inch long, black, with white and scarlet markings. It appears at various times during the year, in spring, fall and winter. In spring, the beetles are found upon the flowers of spiræas, and other flowers. The insect is a native of Europe, and is supposed to have been imported in some foreign carpets. Its scientific name is *Anthrenus scrophulariæ*. Though especially destructive to carpets, the insect feeds on all other woolen fabrics, and also on feathers. It works under the edges of carpets, making large holes near their margins. Where there are large cracks in the floor, they will work along these and cut the carpets into strips. Great losses have been sustained from these insects, in houses that have been closed for the summer, during the absence of the family.

The most effective remedy is steam. As the insects confine their operations to near the edges of the carpets, a wet sheet is folded to form a strip a foot or more wide; this is laid upon the carpet

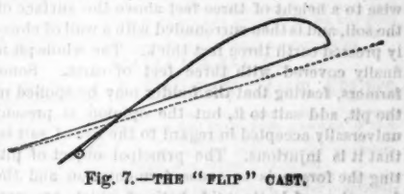


Fig. 7.—THE "FLIP" CAST.

close to the baseboard; several flat-irons are heated quite hot, and passed over the wet sheet; this will generate abundant steam which will be forced into the crevices, and destroy the insects in their hiding places. This remedy, when thoroughly applied, has been found so effective, that few others have been tried. Still, the Persian insect powder, especially the form called Buhach, is so generally destructive to most kinds of insects that it would be well to sprinkle this along the sides of the room when the carpets are laid down. Before laying down the carpets, the cracks in the floor and between the baseboard and the floor, should be filled; this may be done with hard soap, putty, or, if very large, with plaster of Paris, mixed with water and applied before it sets. Articles of clothing, and other woolens, if they contain this insect, or the common clothes moth, may be readily freed from them by placing the articles in a tight box or trunk—a tin wash-boiler will answer well—and

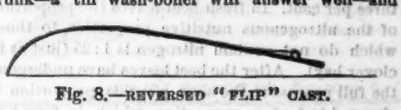


Fig. 8.—REVERSED "FLIP" CAST.

pour a few tablespoonfuls of benzine over them, closing tight. The vapor of the benzine will diffuse itself through the articles, and destroy all insect life.

DIPPING SHEEP.—The whole flock ought to be dipped twice within ten days—once before shearing to remove the scab insects—else the flock will infect the shearing-floor, and the contagion will be per-

petuated. Then immediately after shearing, when the skin is exposed, a second dipping will ensure a complete extirpation of the insects. But if the flocks are very badly infested it is well to select out the worst cases and give them three or four dippings, extra strong and hot. After the first dipping, let the "spotted" flock be handled—that is, examined—and the scabs and scraps of wool removed so that the second and subsequent baths will penetrate to every lurking place of the insect parasites.

Ensilaging Beet Leaves.

H. N. JARCHOW.

In European husbandry, beet raising is of the greatest importance, not only for sugar making but also on account of the great nutritive value of both the beet and its leaves. Though the leaves are occasionally thinned during the time of the growth of the plants, at harvest, in the fall, there is a great mass of green leaves on hand, averaging 4,000 pounds to the acre. These leaves represent to the European farmer a money value of from six to seven dollars. When dried, the leaves loose their nutritive properties, while when pitted green they are not only fully preserved but undergo chemical changes which improve them for feeding purposes.

Sour fodder, made from beet leaves, is cured as follows: The leaves, together with the upper, green, woody part or "neck" of the root, are cut and left a day or so on the field to dry off a little, so that the adhering soil may be easily removed. Wooden forks are used and a sieve five feet long; this is made of laths which are separated three-quarters of an inch in order to allow the adhering earth, which is loosed by shaking the sieve, to pass through readily. The leaves, after having been thoroughly shaken in the sieve and freed from the soil, are packed in pits six to eight feet deep, which are at the bottom six feet and at the top ten feet wide. The forage is accumulated in the pit in this wise to a height of three feet above the surface of the soil, and is then surrounded with a wall of closely pressed earth three feet thick. The whole pit is finally covered with three feet of earth. Some farmers, fearing that the fodder may be spoiled in the pit, add salt to it, but the opinion at present universally accepted in regard to the use of salt is, that it is injurious. The principal object of pitting the forage is to cause fermentation and the formation of lactic acid, both of which are prevented by the use of salt. Lactic acid is formed when lime enters into organic compounds, some of which contain—and others do not contain—nitrogen. These conditions are present in the beet leaves. From experiments it appears that an addition of grain chaff to beet leaves has proven to be very advantageous, because this dry, and by itself innutritious substance, absorbs the liquid contents of the beet leaves when packed with them in the pits. Besides, an addition of chaff, not exceeding five per cent. of the weight of leaves and beet heads, regulates the fermentation of the green mass, renders it drier and more acceptable to the farm animals, while at the same time the woody fibers in the chaff become softened. The sugar in the beet leaves and heads is entirely decomposed, and those parts of the plants which contain nitrogen are also subjected to decomposition, while the fatty substances increase by thirty-three per cent. In fresh beet leaves the proportion of the nitrogenous nutritive properties, to those which do not contain nitrogen is 1:25 (just as in clover hay). After the beet leaves have undergone the full process in the sour pit, this proportion is changed to 1:5, a proportion which is found in good meadow hay. Owing to the fermentation in the sour pit, beet leaves therefore lose the uncommonly rich proportion of their nutritive properties, and enter into a good medium proportion, such as is found in a standard fodder—meadow hay.

After from five to six months the pit may be opened, and there will be found a well preserved nourishing fodder which cost very little, and which every farm animal will eat with avidity.

Chat with Readers.

New Begonia.—H. Schöneberg, Tippecanoe Co., Ind. The specific name of *B. Gogoensis* is derived from *Gogo*, a place in Sumatra. It is a very handsome, ornamental-foliaged species, which was introduced to cultivation in 1881.

Insects on Grape-Vines.—John Jackson, of Woodford Co., Ill., inquires how to kill insects on grape-vines. The best way to get rid of larger insects is to hand-pick them; for smaller insects, use the Persian powder, or Buhach.

A Grass Named.—Z. H. Postles, Mathews Co., Va. The specimen sent, of the grass known as "Wire-grass" in your locality, is undoubtedly Bermuda grass (*Cynodon Dactylon*), so valuable when cultivated, and so troublesome as a weed.

Another Grass.—H. F. Clugh, York Co., Pa., sends us a specimen of the Velvet grass, *Holcus lanatus*, figured and described in this number, on page 334. Our correspondent says that in wet places it grows over three feet high, which is taller than we have ever seen it.

Ants Destroying Melons.—James Van Bussum, Bergen Co., N. J., writes us: "I have a piece of melons, which is being destroyed by ants, and I write to ask if you can tell me what to do to stop them? It appears that the ants are immediately followed by lice, and in a very short time they cause the plant to curl up and slowly die." Apply kerosene in their run-ways, and the ants will soon leave.

White Blackberries.—T. T. Hage, Davidson Co., N. C., sends us a small box of white blackberries which he has found in his neighborhood. Such sports are not uncommon, and several varieties under the names of Kentucky White, Crystal White, etc., etc., are offered in nursery catalogues. They have nothing to recommend them except their oddity, and the canes are not as hardy as the black varieties.

Ants in the Lawn.—G. A. G., Warren Co., Ohio, has a lawn which is overrun by ants of various kinds, and wishes to get rid of them without destroying his entire lawn. A little kerosene oil poured on the runs of the ants will generally drive them away in short order; the oil seems to be very obnoxious to the little pests. It is difficult to suggest any other remedy which would not also destroy the grass, and the above is therefore worthy of a thorough trial.

Two New Cherries.—Messrs. John R. & A. Murdock, Allegheny Co., Pa., sent us, near the end of June, samples of two new cherries, both of the Bigarreau class: "Murdock's Bigarreau" and "Rostraver's Bigarreau." These are both darker colored than any other cherries of the class we have ever seen, the first named becoming, when fully ripe, almost black; the other, though lighter, is of a very rich crimson. Both are more tender-fleshed than Bigarreaus usually are, and of sprightly, excellent flavor.

Milking Machines.—H. W. Crawley, Cape Breton, N. S. When the complicated machine invented by Colvin was first exhibited, as well as when the simple milking tubes were introduced and advocated, we noticed them as matters of interest to all farmers, and especially to dairymen. After a thorough trial at home and abroad, none of the contrivances for facilitating the operation of milking, have been so successful as to allow us to advise their general use.

Magnetic Iron Ore.—John W. Swadley, Sullivan Co., Tenn. The value of magnetic iron ore depends upon the ease and facility with which it can be brought to the smelting furnace. There is an enormous quantity of fine iron ore in this country which is now perfectly useless, and will be so until furnaces are erected in the localities where it abounds. The price of ore is regulated by the distance between it and the coal used in smelting—that is, the nearer they are together the more will the iron ore be worth. The parties you mention do not use the native ore.

Warts on Cows.—George H. Evans, District of Columbia, writes us: "Will you inform, through your columns, as to the best method of treating warts on a cow? The warts are on the cow's belly, and vary in size from a silver quarter to a dollar, and have a cracked or fissured appearance. I am very much pleased with the *American Agriculturist*, and greatly enjoy perusing its interesting and instructive columns." The best method, if they are long enough to admit of it, is to tie a piece of silk thread around them, and they will soon drop off. Warts having a broad base may be tied off in parts, by passing a suture needle through their center, close to the skin, and tying each part separately.

In Sending Insects.—Caterpillars usually reach us in a starved condition; having eaten the small quantity of leaves provided, they die by starvation. Caterpillars are the only insects that need be sent alive, and two or three of these are as useful as the dozen or two often sent. These should be placed in a tin or wooden box, with the leaves upon which they feed. Beetles should be first drowned in alcohol or whiskey, and sent in a box that will not get crushed in the mail, with sufficient cotton-wool to prevent them from rattling in the box, and thus break their legs, etc.

Ice.—Ice in summer is only useful by melting. In order to melt, it must take heat from other substances. In the economical use of ice, we so arrange that it shall derive its heat from substances that we wish to keep cool. Hence, the ice-box or refrigerator is made with non-conducting walls, and the ice, in order to melt, must take its heat from the articles of food, etc., that we place in contact with it. Anyone can make a cheap and useful ice-box, acting upon this principle. It should have double walls—two store boxes will answer, one three or four inches smaller than the other and set within it, the space between them being filled with sawdust, and provision made for carrying off the water resulting from the melting of the ice.

Sending Plants to be Named.—During the summer we receive plants by mail almost daily. These often reach us in such a partly decayed or mutilated condition that, unless the plant is one with which we are quite familiar, it cannot be made out. If a fresh plant is rolled up in paper, it usually reaches us in bad order. It is better to dry the specimens between folds of newspaper, or between the leaves of a book of no value. When dry, place it in a fold of paper, and place this between two pieces of pasteboard; enclose the whole in a wrapper of stout paper, and tie securely. Besides the direction, write on the outside, "Plants only." A properly dried plant is more readily examined than a partly decayed, fresh one. Plants may be sent fresh if in a tin or light wooden box, provided the distance is not too great, and the plants are not kept in the box, in warm weather, more than four or five days.

Self-Sucking Cows.—L. B. J., Augusta Co., Va., writes us: "Has anything ever been invented that will stop a cow from sucking herself, or keep her from doing it? I have tried the spiked nose halter, and the surcingle and stick running up to the halter between the fore legs, but she blunts the spikes in the ground, and lies down and pushes her knee over the stick, and brings her head around and sucks herself in spite of me. I have a frame on her neck now which is too much for her, but she breaks it often, and it necessarily cramps her motions objectionably. If there is any appliance that can be relied upon to stop or prevent this abominable practice, please send me the address of makers." There is no permanent cure for this annoying habit, and—if the cow is worth keeping—all that can be done has to be with a view to prevention. The most efficient and least cruel appliance is a hollow perforated bit. We do not know that it is for sale anywhere, but from the description and illustration of it given in our February issue of this year, anyone can easily make it.

How to Thatch a Roof.—D. Thompson, Butler Co., Kan. A thatched roof to be durable, should have a steep pitch, to shed water, and the straw must be free from grain, else the rats will make havoc of it. The rafters may be made of poles cut in the woods; these should be two inches and a half in diameter, nailed to the beam of the peak, and placed ten inches apart. Smaller poles may be used for sheathing; these should be about eight inches apart. Begin at the lower end of the roof, by placing a loose bunch of straw, so that the butts project three inches over the edge, and tie it to the outside pole and the one next above. This row must be well secured. Lay on another row of bunches, letting the butts come down even with the first, fastening with one tie to the third row of poles. Place on another row of bunches, so that the butts are about eight inches higher up than those of the two front rows, and proceed as in laying shingles until the roof is finished. The corners and comb of the roof are best fastened with wire to keep the wind from lifting the roof. A good thatch is as durable as shingles.

SEE PAGES 347, 348, and 349 FOR MATTERS OF INTEREST.

PROGRESSIVE COOKERY.

In none of the departments of domestic economy has the progressiveness of the times been more marked than in that governing the preparation and perfection of our food. People no longer submissively eat without question what may come before them through the agency of inefficient cooks, careless grocers, and rapacious manufacturers. Not only are cleanliness, purity and wholesomeness carefully considered, but food is required to be prepared from those ingredients that will insure the most sightly and nutritive, and, therefore, the most appetizing effects. To this end cooking schools taught by professors in the art have been established and are liberally supported in our principal cities, while housekeeping and culinary matters are treated by our principal journals and by numerous magazines devoted exclusively to the subject in the most interesting and elaborate manner. To know how to cook and how to cook well has become a fashionable accomplishment.

No agency has assisted so much toward perfection in cookery as the Royal Baking Powder. Perfection in cookery demands the best methods and the purest and most effective articles to work with. Cream of tartar and soda, or saleratus and sour milk, could never be used in the exact proportions required to raise proper food; hence when depending upon them the cook frequently found her bread, cake, biscuit or pastry heavy, bitter, yellow, or with lumps of soda that set the teeth on edge. She was never sure of an article that was perfect to the taste, much less one that was pure, for the cream of tartar and soda purchased at the shops always contained lime and was more or less adulterated with alum. In the Royal Baking Powder the leavening agencies exist in proportions that are mathematically accurate, so that after use there are none of the ingredients left in the food. All its parts are chemically pure, hence there can be no impurities or deleterious substances imparted to the finished product. It is of the highest and always exactly the same leavening power, and its strength never deteriorates with age; therefore the same effect is always produced by a given quantity, the lightest food is insured, and there is never a doubt of its effectiveness, no matter what its age. When used as directed the Royal Baking Powder never fails to produce pure, wholesome and palatable food, while it is more economical than cream of tartar and soda, sour milk and saleratus, and in all ways superior to yeast.

The Royal Baking Powder is indispensable to progress in cookery, to comfort and convenience in the culinary work of the household, and to the production of the most perfect and wholesome bread and pastry.

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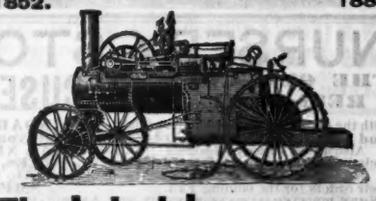

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$300. REWARD WILL BE GIVEN to any person that can furnish an Automatic Swinging Straw Stacker that can do better work than the IMPERIAL STACKER that we are building.

Send for circular and price list which will be mailed free. All are warranted to do good work or no sale.

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ACME PULVERIZING HARROW, Clod Crusher and Leveler.

The Best Tool in the world for preparing Wheat Ground and for Summer Fallows.

NASH & BRO., Sole Manufacturers, Harrisburg, Pa., & Millington, New Jersey.

N.B.—"Tillage is Manure" and other essays sent free to parties who name this paper.

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OFFERED THIS SEASON FOR THE FIRST TIME.

On the 10th of June of this year, we examined this Strawberry on the grounds of Mr. E. W. Durand, and found 3,000 plants that had been planted on the 15th of August, 1885, which in less than 10 months from the date of planting, were producing a crop that would average fully a quart to each plant; 3,000 quarts from the 3,000 plants, or at the rate of over 20,000 quarts per acre. The crop was so immense and the size of the berries so large, that the pickers, who were paid 2 cts. per qt., averaged 25 qts. per hour, or $5.00 per day—a fact beyond question, and which a dozen affidavits could be had to attest. When to this extraordinary production we add the further facts that this strawberry is of the richest crimson color, borne in immense clusters, and that it is one of the LATEST as well as the EARLIEST, as its great vigor prolongs its season of fruiting, added to its excellent quality, there is every reason to think that it is bound to be the most valuable strawberry ever raised by Mr. Durand.

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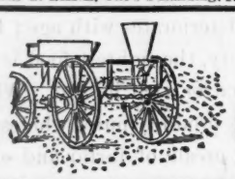

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Well-known, Perfect Worker, Durable, Well Made.

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$50 REWARD

will be paid for any **Grain Fan** of same size that can clean and bag as much Grain or Seed in one day as our **Patent MONARCH Grain and Seed Separator** and **Bagger** or our **Improved Warehouse Mill** with Equalizer, which we offer cheap. Circular and Price List mailed free.

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Warranted the most perfect Force-Feed Fertilizer Drill in existence. Send for circular, A. B. FARQUHAR, York, Pa.

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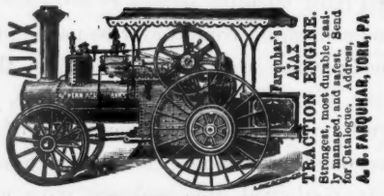

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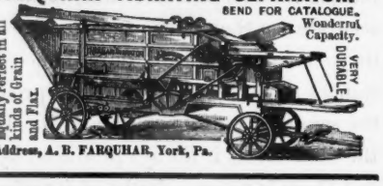

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Thresher and Cleaner—Clover Huller and Cleaner—Straw-Preserving Rye Threshers—Railway and Lever Powers—The Howland Feed Mill—The Aspinwall Potato Planter, and Digger. Our machines are guaranteed to work well, and have received the highest testimonials and cannot be excelled.

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$1000 REWARD

For any machine hulling and cleaning fit for market as much Clover Seed in ONE DAY as the VICTOR DOUBLE HULLER.

Illustrated circular mailed free.

THE VICTOR has made $100 often in ONE DAY.

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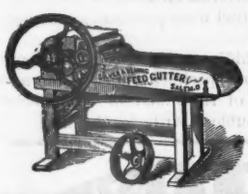
FEED & ENSILAGE CUTTERS

IMPROVED FOR 1886.



Adapted to cutting hay, straw and corn fodder, both green and dry. We make a full line of Cutters for hand and power.

Special inducements made to parties where we have no agent or dealer handling our Cutters. Send for New Price list and full particulars.

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are sent anywhere on trial to operate against all other presses. the customer keeping the one that suits best.

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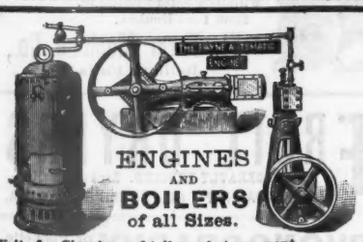

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Satisfaction Guaranteed.

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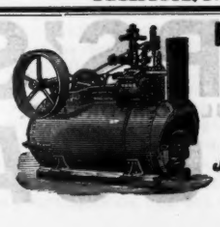

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3 TO 10 HORSE POWER.
OVER 3,000 IN SUCCESSFUL OPERATION.

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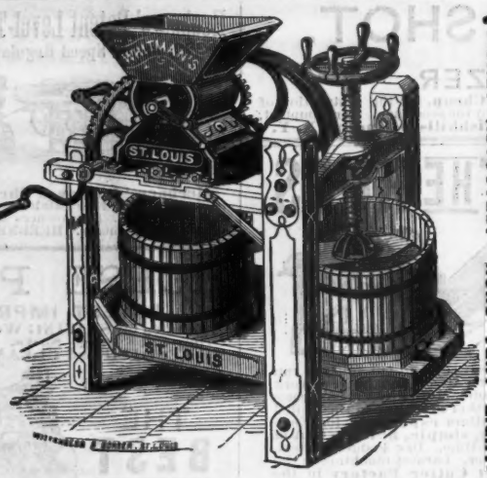

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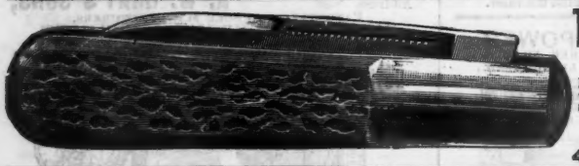

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See advertisement on page 343.

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Safety Steam Engines, best Railway and Lever Horse Powers, Threshing Machines, Straw-Preserving Threshers, Disc and Spring Tooth Harrows, Eagle Sulky Horse Rakes, Cultivators, Feed Mills, Feed Steamers, Grain Seeders, Corn Planters, Plows, Plow Sulkies, Hay Presses, &c., &c. Established 1830. Send for Illustrated Catalogue.

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PHONOGRAPHY or Phonetic Short Hand. Works for self-instruction, by Benn Pitman and Jerome B. Howard, for sale by all book-sellers. Catalogue, alphabet and illustrations sent free. Address PHONOGRAPHIC INSTITUTE, Cincinnati, O.

Soap and Water.

Soap and water are most important articles. Water is one of the necessities of life, while soap is one of the necessities of modern civilization. The eminent Liebig wrote, that the quantity of sulphuric acid and of soap annually used in a country indicated its advance in civilization. Sulphuric acid is, so to speak, the key, without which numerous arts and manufactures could not be carried on. Soap is necessary to that cleanliness of person and clothing demanded by highly civilized communities. However important soap and water may be (and soap is of no use without water), we wish to procure each separate, that we may unite them as occasion requires. A subscriber in Lowell, Mass., writes us his father's experience in a soap trade. He (the father) was called upon by a chap claiming to represent the "Wells Manufacturing Company," of Providence, R. I. A cake of very good palm soap was shown as a sample, and by naming a very low price, the father was induced to purchase a box of soap on trial. When the soap came to hand, it was cut up into bars and placed in the garret to dry and season, as is customary with prudent housekeepers, in order that their soap may not be wastefully used.

All that remained of a half-pound bar was sent us by letter in the form of a coarse powder, less than an ounce in weight—all the rest was water! So much water was there in the soap, that it leaked through the floor and greatly disfigured the ceiling of the room below. The purchaser wrote to the alleged makers, giving an account of his experience with their soap. In course of time his letter came back to him by way of Washington. The letter, having been duly advertised in the Providence papers and no one claiming it, was sent, in accordance with the rule, to the Dead Letter office, whence it was returned to the writer. The fact that the "Wells Manufacturing Company" could not be found, even by advertising its letters in that busy city, shows that the "company" is not widely known, and that its business with the post-office can not be large or frequent.

WATER IN SOAPS.

The principal adulteration in soaps is water. All soaps contain a certain proportion of water, but such is their nature that a much larger proportion may be added without changing the appearance to any great degree. A soap has been sold in England that was three-quarters of its weight water, yet it retained its shape and appeared as dry as ordinary soap. Even castile soap, which is dry and brittle, contains as much as fifteen per cent of water, and the ordinary soaps offered for sale contain from twenty to fifty per cent. of water. The amount of water in a sample may be readily ascertained by weighing, slicing it very thin, and exposing it in a warm place until the pieces become brittle; on weighing in this condition, the loss of weight will approximatively show the quantity of water present in the sample.

"Electricity in Nature."

Mr. D. B. Long, of Erie Co., N. Y., and other subscribers of the *American Agriculturist* are receiving circulars describing a "work on Electricity in Nature," by one "H. B. Philbrook, of New York City," who, the circular says, has written "the most wonderful book on earth." We might consider this the "most wonderful" if he had not another which appears to us to be "more wonderfuller" than the "most wonderful." It is, "New Knowledge—Cause and Cure of Disease." When some persons meet with phenomena they cannot understand, they say, "Electricity," and think they have explained all. A vast amount of false science is covered up by ascribing things to electricity; but to know the "cause and cure of disease"—and this being "new knowledge—absolutely new to the human race"—sounds like something worth while. It is not a book for circulating libraries, nor one to be placed on the family book-shelf, as fearful results might follow. This description, by an agent, shows what kind of a book this is: "Reader, when you first cast your eyes on a brilliant electric light, you felt a dazed sensation—felt inclined to reel or stagger while observing it; an observation of the contents of this book will give you a similar sensation; you will meet a grand surprise on every page." We advise those who read this stunning book, to wear green glass or smoked glass goggles, and thus avoid the reeling or staggering that may follow. Besides telling what the book is, he tells us what it is not. "It is not a 'mind cure,' but it is a volume of NEW KNOWLEDGE, that was never observed by mortal eye before this book appeared." We have often pitied poor Solomon, that, with all his wisdom, he never saw a steam-engine or a telegraph. Now we must in like manner pity the "mortal eyes" that must have closed before this book appeared. We have often said that this is a grand epoch in which to live; history is made so fast, and discoveries and improvements follow one another so rapidly; and now we must add to our causes of gratitude for having lived in this century that this is the era of "New Knowledge." Hear what this book does: "It teaches what the power is that operates the body and all of its organs, and that a proper equalization of the force is perfect health; and that an unequal distribution of it will destroy an organ or that part that possesses the excess; and that the part wanting the power will die, as in a case of gangrene; and that the absence of this wonderful force in the body is what we call death." This is not the first person who, by calling old things by new names, has thought he explained them. Calling life a "wonderful force," and death "the absence of this wonderful force," may be "new knowledge," but it is not useful. It of course follows, if one will only control this "wonderful force" there need be no disease, for this book teaches how to stop the cause of disease, and the disease leaves in disgust. One who has this "new knowledge" can go among small-pox and other contagious diseases; and more than that, can prevent hydrophobia in one who has been bitten by a mad dog. We thought that Pasteur had given the world "new knowledge" about contagious diseases; Pasteur is still experimenting, but Philbrook's book not only tells how to prevent hydrophobia in one who has been bitten, but tells "what causes the madness of the dog." The publisher considers his "Work of Electricity in Nature" the "most wonderful book on earth." It claims to tell how everything in nature "was made," and "what it was made of;" it even tells "How the human soul is made and what it is made of, and where it goes at the death of the body." The description closes with: "Do not fail to get the book. If you do you will miss the grandest opportunity of your life."

"Deafness, and How to Cure it."

One T. S. Page, of New York City, has advertised far and wide that, after an attack of typhoid fever, he was deaf, and remained so for twenty-eight years. During this time he was in the care of "some of the most scientific ear doctors of the day, without one particle of benefit." The doctors failing to help him, Page went to work upon himself, claims to have cured himself, and now offers to cure other deaf persons by the same means. These statements are made in advertisements; and numerous circulars, setting forth his claims to cure deafness in more detail, are scattered widely by mail. Naturally, many of our readers, who are so unfortunate as to be deaf, see these advertisements and circulars, and write to ask our opinion of this Page and his treatment. Such inquiries we usually answer on general principles—do not employ anyone advertising or guaranteeing a cure.

DOES HE GUARANTEE A CURE?

Page thus answers this question in one of his circulars: "I can, under certain conditions, guarantee a cure. Viz.: First—That the ear-drum is not destroyed; and, Second—That the patient will *come here and remain for a sufficient length of time* under my own personal daily treatment. Under these conditions I can guarantee a cure." The words we have Italicized show how safe it is to guarantee a cure. "It is only a question of time."

A CASE IN TEXAS.

One of our old subscribers, in Wheeler Co., Texas, applied to Page, who furnished him a series of questions relating to his case, to fill out. From the answers of the patient to these questions, one of the M. D. men made out a *diagnosis*, and *prognosis*, also; this was sent to the deaf Texan, with an introduction by the head of the establishment—in a regular printed form.

The letter of the deaf Texan to us showed a great anxiety to be relieved of his deafness, and unwillingness to venture ten dollars on an uncertainty, and its tone so touched the sympathy, of one of our associates, that he visited the deafness shop to reconnoitre. On his return, he presented the following report: I called at Mr. Page's office, and found on the second floor, in what appeared to be an apartment house, two young men sitting there in their shirt-sleeves. I saw no medicine in the room, and asked for Dr. Page; one of the young men spoke to another man, and said: "Doctor, somebody wants to see you." The name on the door was Dr. McCorn. I told him I had a correspondent who had written me about being cured of deafness, and wanted to know if he should come on here. He said "He could just as well be cured at home." I asked him if he would guarantee a cure; he replied: "No, where deafness came from bruises, it was usually incurable, but would guarantee a cure where it came from disease." I asked him what medicine he used? He said it was in liquid form.

THE LAW AND THE DOCTORS.

In New York State, no one can practice medicine, unless he has registered his name at the office of the county clerk, with an affidavit showing where he has studied, and the school at which he graduated. Anyone who practices medicine, or prescribes for another, without having done this, is subjected to a fine. Page does not claim to be a doctor, but to avoid the penalties of the law, has he engaged some real doctor to do the prescribing, while he furnishes the medicine "in liquid form?" There are, unfortunately, some who can legally sign M. D. to their names, who will accept such a position, and thus become "aiders and abettors" of quackery.

Havana and German Processes.

A. C. C., Library, Pa. The methods of preserving eggs called, "Havana" and "German Methods," will, no doubt, preserve eggs—and so will simple lime water. The main ingredient in these other methods is lime water, to which are added other substances, which, if they can add to the preserving power of the lime, are in too small quantities to be of value. Adding these to lime water is a mere alteration without improvement. The other "process" mentioned we have not yet met with. As it comes from the same source as the others, we should not expect much from it.

Free Orange Groves in Florida.

J. A. Baxter, Middlesex Co., Mass., sends an advertisement cut from a Boston paper, in which the "St. Andrew's Bay R. R. and Land Co." announce that they will give an orange grove free. Moreover, they will pay the taxes on the land for two years. Our correspondent asks us to "kindly explain what it (the advertisement) means." An examination of the advertisement shows that the name of no person whatever appears in it. We have known one man to call himself a "University," another claimed to be an "Institution." For all that appears, this "Co." with the long name may comprise but a single person. Another noticeable feature of this advertisement is, that its headquarters are located in Cincinnati, Ohio, instead of in some place in Florida. The beautiful Queen City has been unfortunate in some of her land schemes. A few years ago lots, or plots, were almost given away in a town in Texas. We say "almost" given away, for a modest one dollar was required for recording the deed. It is stated that the "Company," in this case of but a single individual, accumulated dollars to record deeds sufficient to allow him to go to another part of Texas and there start a "pony breeding ranch," which in former years we have described as a first-class fraud. This impels us to say, that all very generous schemes for giving away lands, especially if emanating from Cincinnati, should be closely examined before even accepting an "orange grove" as a gift. The owner of real estate is liable for other expenses than taxes which, in this case, are to be paid for two years. But who will pay them?—The Company—who are "the Company?" Deeds are to be sent from Cincinnati, but unless they are recorded in Florida they are of no more value than blank paper. For a deed of land in another State the Commissioner of that State must recognize it, and he must have his fees.

One of our associates suggests that the object in offering tracts of land free may be to build up a settlement at the place, and this would allow the "Co." to sell the rest of the land at good prices. Those who contemplate going to Florida on the terms of such an offer should consider what kind of a settlement or community that would be, made up of persons tempted to go there by a gift of land, moneyless persons hired to act as "stool pigeons" to those who have money and can purchase land. As this world goes, people do not give away forty acres of land, and pay taxes on it for two years to perfect strangers—to Tom, Dick and Harry—whoever may apply (and this promiscuous crowd is the worst feature of the scheme), without expecting to make something by it. If attracted by such proposals, and the names of those who make them are given, it will not be very difficult to ascertain the character and reputation of these persons. If, as in this case, there is only a "Co.," one should examine the scheme in the light of common sense. We have here indicated some of the points to be looked into, and there are others which will occur to a practical business man. Some of the benevolent, give-away land schemes are altogether too good to be true.

SPECIAL PREMIUM FOR OUR BOYS AND GIRLS.

THE JUVENILE CABINET.

There is no more proper nor more interesting study for children than the study of natural history, the study of objects of nature around them. And their future mental activity, depends largely on the efforts which may be made by parents, guardians, and instructors, in developing their tastes for these studies in natural history. A valuable and interesting means for this purpose is **Tammen's Juvenile Cabinet,** of which we herewith present an illustration.

In describing this Cabinet, Mr. Tammen says, it contains four specimens of gold, three of silver, one zinc, one lead, three iron, two copper ores, each a different variety; one agate, (surface polished) opalized wood, rock crystal, silicified wood, molydenum, Iceland spar, topaz, two jaspers, dendrite, tourmaline, opal agate, arragonite, milky quartz, sulphur, selenite, Amazon stone, feldspar, fluorspar, variscite, chalcedony petrified wood, alabaster, mica, wavellite, etc. The specimens in this cabinet are in a strong pasteboard box, divided into forty sections (size 8¼ by 6¼ inches) in which the objects are affixed.

This valuable Cabinet we will send, post-paid, to any person who forwards us one new subscriber to the *American Agriculturist*, together with $1.50, before September 1st, or we will forward this Cabinet to any address, post-paid, on receipt of eighty-five cents.

The Great Poultry Book Premium.

PROFITS IN POULTRY.

This new volume of 256 pages and 100 illustrations is the most thorough, complete and cheapest work on poultry raising ever issued. It is edited by such well-known writers as T. M. Ferris, Mason C. Weld, and P. H. Jacobs. The volume is beautifully bound, and the newspapers and individuals all unite in pronouncing it far superior to any other work of the kind issued in this or any other country. To any person who, before the 1st of September, will send us a new subscription to the *American Agriculturist* with $1.50, beginning with any month, we will send this volume free. This is a great offer, and is continued only until the 1st of September, as stated.

Limited to no Country or Hemisphere.

The other day one of our subscribers called in to state that he had received several orders from Australia, through an advertisement inserted in our columns. Circulating as it does in every part of the globe, and carefully excluding all advertisements which are not believed to be of a genuine character, the *American Agriculturist* offers an unsurpassed medium to advertisers. How well our patrons understand this, is shown by the fact that, notwithstanding the continued depression prevailing through the country, our advertising, in this August issue, amounts to fully a page more than for the corresponding month of last year. To all of our readers we have to say, read these advertisements not only for the information afforded, but for suggestions of new machinery, etc., etc., etc., which may be desired.

Extended Until September First.

The new camera, so fully described on page 309 of the July *American Agriculturist*, has proved a very popular premium. We therefore extend the time in which it can be secured until September 1st. Remember, by sending us thirteen subscriptions to the *American Agriculturist* at $1.50 each, you receive this complete outfit for your labor in securing the subscribers. Turn to the July *American Agriculturist* for full particulars of this new Camera.

To Former Subscribers.—Greeting.

We have something to say and something to send to every person who has been a subscriber to the *American Agriculturist* during the past fifteen years. Some two years ago, several of our subscription lists were surreptitiously taken from this office, embracing several thousand names of old subscribers that we now *wish to procure*. To that end, will every subscriber to this periodical within the last fifteen years, and who is not now a subscriber, immediately send his name to us, stating what year or years he was a subscriber? Present subscribers will likewise confer a favor by sending us the names of former subscribers in their respective localities.

Farm Experiments.

The Associated Press dispatches to the daily newspapers of the country contained the following on July 9th:

Particulars of the burning of the residence on the Experimental Farm of the *American Agriculturist*, early Tuesday morning, show that several prominent New Yorkers barely escaped with their lives. Professor Penfield and his wife were rescued after their room was filled with flames and smoke. The wife and two children of a well-known member of the Stock Exchange were saved through the presence of mind of a female servant, while two servants sleeping in an upper story were with great difficulty awakened and dragged in their night garments from the burning building. Mr. W. J. Judd, superintendent of the farm, and six others reached the yard with scarcely any garments. Mr. David W. Judd, who had been expending considerable sums on the agricultural Experimental Farm for which the property was purchased, states that the building was partially insured and will be immediately rebuilt.

Now, as for a quarter of a century, the *American Agriculturist* is the recognized authority the world over, for all matters pertaining to agriculture, horticulture, etc. The great staff of editors who have kept the *American Agriculturist* at the front during that period, are still aiding in extending its wide sphere of usefulness and influence. Now, the proprietors are completing arrangements for Farm Experiments, which will prove a source of no little profit and value to the readers. It is their purpose to provide most extensive experimental facilities, and to that end no expense will be spared.

Contributors to this August Number.

A. B. Allen, Founder of the *American Agriculturist.*	David W. Judd, N. Y.
Dr. George Thurber, N. J.	Seth Green, N. Y.
Robert B. Roosevelt, N. Y.	Dr. F. M. Hexamer, N. Y.
Peter Henderson, N. J.	Oscar R. Gleason, Mass.
Joseph Harris, N. Y.	John M. Stahl, Ill.
Geo. C. Bruce, W. Va.	P. H. Jacobs, N. J.
R. G. Newton, Dakota.	Dr. E. Endemann, N. Y.
M. C. Weld, N. J.	A. S. Fuller, N. J.
John Gould, Ohio.	Stephen Powers, Fla.
Chas. P. H. Gilber., N. Y.	Dr. Peter Collier, D. C.
Belmont Perry, N. J.	C. P. Dewey, N. Y.
H. P. Moore, England.	N. H. Mc Kellan, Canada.
Geo. P. Smith, N. Y.	W. E. Partridge, N. J.
Henry Stewart, N. C.	H. N. Jarchow, N. Y.
E. E. Rexford, Wis.	P. E. Twining, Ohio.
J. E. Day, Ohio.	Wm. G. Lidell, Ala.
John Harrison, Ont.	Mrs. E. H. Leland, Wis.
J. S. Price, Cal.	Mrs. E. S. Welsh, N. Y.
J. H. Keene, Vt.	Mrs. E. M. Niles, Mass.
	Miss Agnes C. Sage, N. Y.

To Subscribers.

Do not fail to immediately notify us if your copies of the *American Agriculturist* do not regularly reach you. Never before in the history of its publication has there been so few complaints from subscribers as now. At the same time where a copy goes astray, we desire to immediately investigate the cause of the miscarriage.

The Prize Stories.

Owing to the serious illness of one of the judges, the committee will not be able to report the successful competitors for the prizes offered, until the forthcoming issue of the *American Agriculturist.*

New Publications.

"My Favorite Receipt."—Some time since the manufacturers of the Royal Baking Powder, of New York City, conceived the idea of securing from the housekeepers of America their best practical cooking recipes. The suggestion met with hearty favor, and immense numbers of recipes were received not only from this country but from other countries. From this number three thousand have been selected and embraced in this publication. These recipes or formulas have been classified for preparing almost every known dish, representing Soups and Broths, Fish and Shell-Fish, Vegetables, Meats, Stews, Poultry and Game, Eggs, Salads, Desserts, Breads, Cake, Condiment, Beverages, Ices, Preserves and Pickles, Perserved Meats, Canned Vegetables, etc., to which a copious index is added. Every branch of the culinary art has received ample attention. Each contributor not only vouches for the utility of her recipe but attests that years of experience have proved it the best way of making the article named, and signs her name and address to it as an evidence of its genuineness and her faith in its superiority. Price, Post-Paid, 50 cents.

Carpet Bugs.—F. E. Wooding, of Genesee Co., New York, who writes us that every house in town is infested with carpet bugs, is referred to the article elsewhere on buffalo moths.

MISCELLANEOUS ADVERTISING.

Mention this paper in writing to advertisers.

VICTORIES

The **only** machine that received an award on both Horse-power and Thresher and Cleaner, at the Centennial Exhibition; was awarded the two last **Gold Medals** given by the New York State Agricultural Society on Horse-powers and Threshers; and is the **only** Thresher selected from the vast number built in the United States, for illustration and description in "Appleton's Cyclopedia of Applied Mechanics," recently published, thus adopting it as the **standard** machine of this country. Catalogue sent free. Address

UNEQUALED

MINARD HARDER, Cobleskill, Schoharie Co., N. Y.

PROF. CHS. LUDWIG VON SEEGER,

Professor of Medicine at the Royal University; Knight of the Royal Austrian Order of the Iron Crown; Knight Commander of the Royal Spanish Order of Isabella; Knight of the Royal Prussian Order of the Red Eagle; Chevalier of the Legion of Honor, &c., &c., &c., says:

"LIEBIG CO'S COCA BEEF TONIC should not be confounded with the horde of trashy cure alls. It is in no sense of the word a patent remedy. I am thoroughly conversant with its mode of preparation and know it to be not only a legitimate pharmaceutical product, but also worthy of the high commendations it has received in all parts of the world. It contains essence of Beef, Coca, Quinine, Iron and Calisaya, which are dissolved in pure genuine Spanish Imperial Crown Sherry."

Invaluable to all who are Run Down, Nervous, Dyspeptic, Bilious, Malarious or afflicted with weak kidneys. **Beware of Imitations.**

HER MAJESTY'S FAVORITE COSMETIC GLYCERINE.

Used by Her Royal Highness the Princess of Wales and the nobility. For the Skin, Complexion, Eruptions, Chapping, Roughness. **$1.00.** Of druggists.

LIEBIG CO'S Genuine Syrup of Sarsaparilla, is guaranteed as the best Sarsaparilla in the market.

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FREE KNIFE. With every Pack of our NEW CARDS. Only 18c. for **40 CARDS**—assorted, *Fringed, Chromos, Hidden Name,* and *Plain Gilt Edge* (your name on all) and lovely **Pocket Knife.** Get a **Club** of 3 among friends, and we send your Pack and Knife **FREE**—that is, 4 lots for 54 cents. *Agent's Sample Book,* 4c.

HOLLEY CARD CO., MERIDEN, CONN.

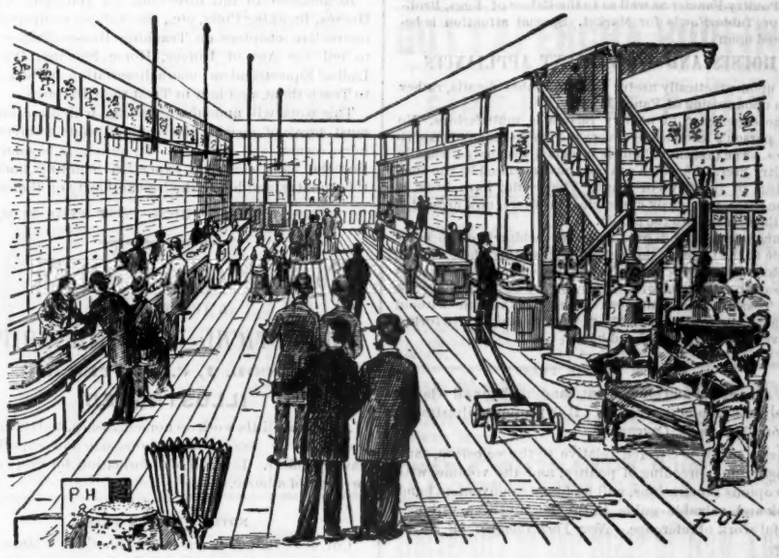
(From the New York World, 1886.)

THE HIGH-PRIEST OF GARDENING.

The Growth of Horticulture in This Country—To Whom Due—The Accepted Authority—An Immense Sale of Flowering Plants.

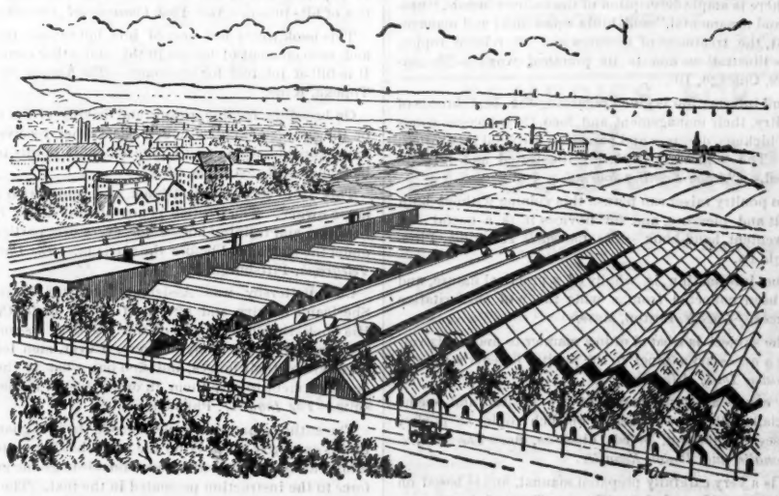
To nearly every one, whether he be a toiler in the city or his more to be **envied fellow-man** in the country, there comes with the approach of spring visions of the delights of gardening, that most ancient of callings of which we are told that Adam, our common progenitor, was the first exponent, and which from the earliest time has furnished for bards of more or less renown a theme by which to strike their tuneful lyres. While the opportunity is seldom given to the city resident to "make a garden," yet we know that thousands of our city merchants who reside in the suburbs find in the gardens surrounding their dwellings a rest for wearied brain and body such as no

INTERIOR OF PETER HENDERSON'S STORE.



other relaxation affords. It follows that the sources from whence these gardens derive either their utility or beauty are matters of public interest; and among the many famous names from London down, who by their writings and teachings have invested the art of gardening with its indefinable charm, that of Peter Henderson is to-day the most conspicuous. A Scotchman by birth, Mr. Henderson has rung his name so loudly over his adopted land that there is scarcely a hamlet where this high-priest of gardening is not accepted as an oracle on all horticultural matters. This has been due to his simple, straightforward way of imparting information, whether on vegetable or flower gardening, the greenhouse or grounds, or even the wider field of the farm. On all these matters Mr. Henderson's

BIRD'S-EYE VIEW OF PETER HENDERSON'S HOT-HOUSES.



Enormous Sale of Peter Henderson's Books.

dictum is the accepted authority. **Some idea of the sale of Mr. Henderson's books [published by the Judd Publishing Co.,] may be formed when it is stated that of his work on vegetable culture, "GARDENING FOR PROFIT," nearly one hundred thousand copies have been sold, while the sales of "PRACTICAL FLORICULTURE," "GARDENING FOR PLEASURE," and "HOW THE FARM PAYS," will aggregate as many more. It was of "GARDENING FOR PROFIT" that the late Horace Greeley wrote: "Thoroughly practical, yet readable as a novel." A novel of which 25,000 copies are sold is a decided success, so that the large sales of Mr. Henderson's works can only be regarded as in the light of something phenomenal.**

VALUABLE BOOKS JUST PUBLISHED.

PROFITS IN POULTRY.

Useful and Ornamental Breeds

—AND THEIR—

PROFITABLE MANAGEMENT.

PROFUSELY ILLUSTRATED.

A thoroughly practical work, being personal experience from various sources, applicable to the surroundings—the climate, nearness to market, neighbors, etc.—of

POULTRY KEEPERS IN ALL SECTIONS.

Valuable to the Novice and to the old Poultry man, to the Poultry Fancier as well as to the Raiser of Eggs, Broilers or Table Fowls for Market. Special attention is bestowed upon

HOUSES AND CONVENIENT APPLIANCES

and upon practically useful and profitable details, rather than upon raising of Fancy Poultry.

The experience of poultry raisers is multifarious. No one person's knowledge covers the whole range of experiences. The present volume is intended to supply a want in poultry literature which can only be compassed by the comparison of the views of many. The results have been, in some cases, previously chronicled, in others, now presented for the first time to the public.

Our country extends over a region reaching from the polar circle to the tropics; throughout almost this whole extent, poultry are raised with profit, and the editor believes that no poultry raiser, between Alaska on the North, and Florida and Texas on the South, can peruse this volume without profit, while for the novice in poultry raising, it will form a convenient and useful hand-book.

NOTICES BY THE PRESS:

A very useful and convenient hand-book for all who are interested in poultry raising. It is profusely illustrated. —*Hartford Daily Courant.*

Every detail is covered relative to the selection, care, housing and breeding of poultry, and the volume, with its copious illustrations, will be found a convenient handbook and valuable guide to the beginner, as well as a useful work of reference.—*New York Commercial Advertiser.*

It is brief and comprehensive, covering all the points that are likely to arise, with practical directions.—*New York Independent.*

Works on poultry are numerous, but not one farmer in a hundred has one, and often feels the need of a counsellor that shall tell him something he wants to know, in a brief, practical, and sensible manner. There is the value of this book. It will be found handy and useful, and doesn't cost much.—*Colman's Rural World.*

There is ample description of the various breeds, "useful and ornamental," and hints upon food and management, the treatment of diseases and all related topics. The illustrations add to its practical worth.—*The Advance,* Chicago, Ill.

Full information is given regarding the best breeds of poultry, their management and feed, their houses, coops for chickens, diseases and parasites, artificial incubation, etc. The volume is profusely illustrated and fully indexed.—*Chicago Evening Journal.*

No poultry raiser can peruse this volume without both profit and pleasure, and for novices it is a useful and convenient hand-book.—*The Chronicle Telegraph,* Pittsburgh, Pa.

The information is wholly of a practical nature, and has been collected from a wide range of authoritative sources.—*Gazette,* Boston, Mass.

The subject is treated of in a manner to make this volume a necessary adjunct to the poultry breeder's library. —*Boston Daily Advertiser.*

It covers all departments of the subject, and seems specially full and serviceable on such topics as poultry houses, incubation, breeds, diseases, etc.—*The Congregationalist and Boston Recorder.*

It is a very carefully prepared manual, and is based on experimental knowledge.—*Evening Transcript.*

It is modern in matter, concise in composition, comprehensive in compilation, and quite cheap at $1.00.—*Farmers' Review,* Chicago, Ill.

Designs for Poultry houses, estimates of cost, etc., are included in this book. In fact, there is probably no question that would be asked, but what finds answer here.—*The Lutheran Visitor,* Newberry S. C.

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OSCAR R. GLEASON'S NEW HORSE BOOK.

How to Handle and Educate Vicious Horses.

By OSCAR R. GLEASON,

THE RENOWNED HORSE TRAINER.

ILLUSTRATED.

In addition to full directions for Handling Vicious Horses, Breaking Colts, etc., the volume comprises very instructive chapters on Teaching Horses Tricks, How to tell the Age of Horses, Horse Shoeing, Diseases, Ladies' Equestrianism; also a dissertation on Dogs—How to Teach them, and how to Treat their Diseases.

This work will undoubtedly attract wide attention, and must prove of special interest and value to myriads of horse owners and handlers. Its author is beyond question the most complete expert in handling horses in this country, and hence the best authority on the subject.

CLOTH, 12mo. PRICE, POST-PAID, $1.00.

THE BRIDLE BITS.

A TREATISE ON

PRACTICAL HORSEMANSHIP.

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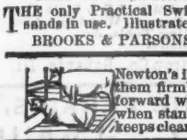

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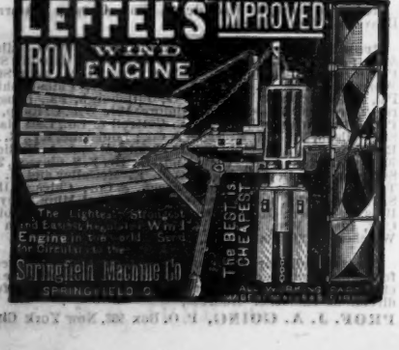

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